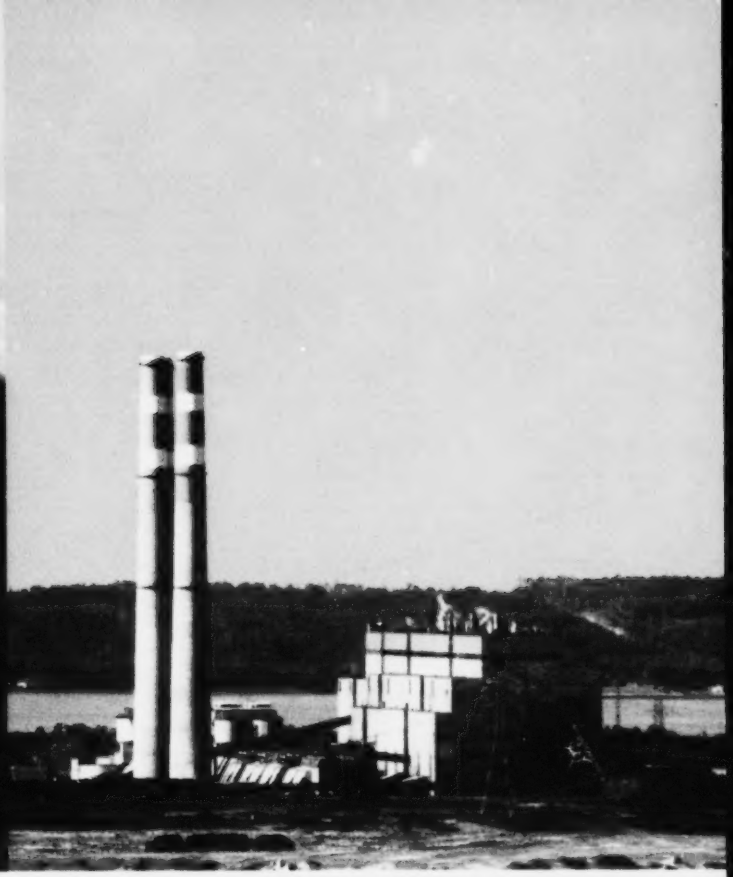

Public Safety and Sour Gas
Final Report
2007

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EUB Alberta Energy and Utilities Board

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Public Safety and Sour Gas Final Report

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FULFILLING OUR COMMITMENT

From the EUB Chairman: Working with Albertans, the EUB has completed the Public Safety and Sour Gas Initiative

"Business can no longer be conducted in the same old way. Whether it is the business of developing resources, the business of regulating, or simply the business of living."

Ken McCrank, Chairman, EUB
Opening Remarks, Alberta Energy Forum, 2001

THOSE COMMENTS were part of a speech I made in reference to how the scale and pace of energy development were impacting Albertans in the early part of this decade. Today, in 2007, that pace is even more intense, with the Alberta Energy and Utilities Board (EUB) seeing record-setting numbers of applications for resource development in the province.

As the new millennium began, Alberta stood poised on the threshold of yet another energy boom and stood equally prepared to endure yet another energy recession—a part of the boom and bust cycle that Albertans had come to expect. The bust hasn't happened, the downturn has not occurred; instead, energy development throughout this decade has driven Alberta's economy to unimagined heights. In the process, the EUB, the petroleum industry, the public, and indeed society as a whole have changed the way they do business…and the way they live.

The late 1990s were tumultuous times in Alberta. Vast deposits of oil, gas, oil sands, coal, and other resources underlie the province. A significant proportion of Alberta's conventional oil and gas contain hydrogen sulphide (H_2S), which is corrosive and extremely toxic in small concentrations. As sweet gas reserves started to decline and gas demand started to increase, more companies began planning sour gas development projects in areas near people.

Since the beginning of this initiative, I have stated that public safety is and will always be the EUB's highest priority, and the completion of the PSSG initiative stresses the EUB's commitment to that priority.

Because of its toxic and corrosive nature, the exploration for and development of sour gas presented many special issues, including concerns about public safety.

To better understand and address these concerns, in January 2000 the EUB established an independent committee, the Provincial Advisory Committee on Public Safety and Sour Gas (PSSG), with a mandate to review and assess the province's regulatory regime as it related to public health and safety, including the requirements being applied to the approval, development, and operation of facilities respecting Alberta's sour natural gas resources.

The committee was chaired by Gerry DeSorcy, a former chairman of the EUB. Members of the committee included medical professionals, representatives from First Nations, rural and urban government, the land development industry, academics specializing in risk research, various provincial departments, and members of the public.

The committee embarked on an extensive research and information gathering process that took one full year. Papers and presentations were compiled, and two rounds of meetings were held in nine towns and 16 aboriginal communities around Alberta that were directly affected by sour gas development.

In December 2000, the committee presented the EUB with a report containing 87 detailed recommendations directed towards four key areas:

1) providing a better understanding of sour gas,

2) improving the sour gas regulatory system,

3) reducing the impacts of sour gas on public health and safety, and, most important,

4) improving the consultation that takes place with the public on all sour gas matters.

Upon receipt of the report and recommendations, I committed that the EUB would work with Albertans, the oil and gas industry, and other stakeholders to ensure that each of the 87 recommendations was addressed. I am pleased to announce that the EUB has now completed this important task.

Before highlighting the many new processes and changes to our regulatory framework that were implemented to address the recommendations, I would like to sincerely thank all of our stakeholders for their invaluable contribution to the PSSG initiative over the last six years. Without your assistance, the EUB would not have been able to successfully complete this work.

Countless members of the public, staff from other Alberta government departments and agencies, and industry representatives provided assistance to

EUB staff on numerous recommendations, which is greatly appreciated.

Since the beginning of this initiative, I have stated that public safety is and will always be the EUB's highest priority, and the completion of the PSSG initiative stresses the EUB's commitment to that priority. In the April 2002 *Public Safety and Sour Gas Annual Progress Report*, I indicated that the changes we were making through the initiative would result in a "fundamental cultural shift" in Alberta's sour gas industry. I believe that such a shift has occurred and will continue to gain momentum as more of the processes and actions implemented through the initiative begin to have their full impact on how the province's sour gas resources are developed.

Let's make no mistake, sour gas development will continue to impact communities and the people who live and work within them. Even with all the improvements made through the PSSG initiative to reduce these impacts, the public will continue to express concerns about the development of sour gas in and near their neighbourhoods. However, I believe that all stakeholders, including industry and the EUB, are now better equipped to resolve issues through open and honest discussions and a better understanding of the regulatory system and each other's concerns and interests.

Now that we have fully addressed the recommendations, the next challenge is to ensure that we have the processes in place to measure our successes and to continually improve and build on the work that has been done over the last six years. To accomplish this, the EUB will continue to challenge itself and the sour gas industry to undertake business in a manner that is mindful of public concerns and needs.

To make sure that the EUB's commitment to public safety remains highly effective and visible, I recently established the Public Safety/Field Surveillance Branch within the EUB, consisting of the Public Safety Group and the Field Surveillance Group. Although public safety has always been a priority throughout the EUB, the newly created Public Safety

Group is now the focal point within the EUB for public safety-related matters. This group will ensure that the PSSG policies and processes developed are sustained and their effectiveness measured. It will review and analyze all EUB public safety responsibilities and recommend changes as necessary, advise and assist with continual improvement of public safety within the EUB's jurisdiction, inform stakeholders about key public safety services and processes that the EUB provides, and engage them in continual improvement processes. The Field Surveillance Group will continue its traditional inspection role, along with developing additional linkages with the Public Safety Group.

I am excited about the role this new branch is playing in addressing the high priority the EUB has assigned to public safety. Again, one of the EUB's primary roles as a regulator is to ensure public safety and the EUB will continue to make decisions based on this priority.

Now let me share with you a few highlights of the numerous actions implemented through the PSSG initiative.

Health Effects and Sour Gas Research

Two major reports were developed by Alberta Health and Wellness (AHW) that provided significant health information to Albertans on the effects of short-term exposure to low levels of both H_2S and sulphur dioxide (SO_2). The goal of these reports was to provide a review of the available primary scientific literature to help with understanding the current state of knowledge regarding exposure to these contaminants.

AHW provided the EUB with revised emergency evacuation criteria for H_2S. After a change implemented by Occupational Health and Safety, the EUB reduced the emergency evacuation level from 20 parts per million (ppm) of H_2S to 10 ppm. AHW also worked with the Alberta Medical Association and Alberta Human Resources and Employment to develop clinical practice guidelines for H_2S exposure. These guidelines will ensure a standardized medical response to H_2S exposure.

A strategy is being developed by a multistakeholder team of health professionals, environmental groups, government, and the public, to establish a central call centre staffed by medical professionals that could house a computer-based system to collect data. The health professionals could then analyze collected data and initiate further research or actions in response to identified problem areas.

If a noncompliance event should occur, responsive, appropriate enforcement actions are taken to ensure swift resolution of the issue.

Sour Gas Development Planning and Approval

Protocols were developed to ensure that local authorities are consulted whenever the EUB undertakes a review of its regulatory requirements or requires input into an EUB policy or process. The protocols establish a dialogue among industry and local health and municipal authorities, allowing for continual improvement to the regulatory process as a whole.

Directive 056: Energy Development Applications and Schedules underwent extensive revisions in 2002 and now requires that a nonroutine designation be automatically applied to all applications for critical sour gas wells. A critical sour gas well is one that could potentially release large quantities of H_2S, causing significant harm to nearby people. Prior to this change, a critical sour gas well could obtain a routine designation during the application process, allowing for postapproval review of the application required to drill the well.

Revisions were also made to *Directive 029: Energy and Utility Development Applications, and the Hearing Process* and a companion brochure, *Energy and Utility Development Applications, the Hearing Process, and Cost Awards*, was issued. In addition, a video was created to further expand on the printed material. All three of these initiatives help explain the process and rules surrounding EUB hearings and make the hearing process much more user friendly.

Additionally, EUB hearing coordinators now develop and implement action plans to track and monitor conditions attached to decision reports. An external audit of action plans is in progress. Results from this audit will be used to improve or revise existing procedures as necessary.

Sour Gas Operations

A comprehensive compliance assurance plan has been developed that builds on the strengths of the EUB's present compliance strategy. The plan includes prevention, education, and information

before noncompliance occurs. If a noncompliance event should occur, responsive, appropriate enforcement actions are taken to ensure swift resolution of the issue.

Complaint response and investigation are among the EUB Field Surveillance Group's highest priorities. All complaints are investigated and, upon request, field staff conduct follow-up visits with complainants to discuss the results of the investigation. Effective September 1, 2001, the Field Surveillance Group inspects all critical wells near people at least once during or immediately prior to drilling of the critical zone.

Modifications to the inspection priority system increased the inspection frequency on existing sour facilities. This ensures that all new facilities are now selected for mandatory inspection. EUB *Directive 056* requires a facility amendment for any sweet facility wishing to convert to sour service. All sour facilities must address matters of public safety, air emissions, notification requirements, and proliferation policies. In addition, the inspection of any facility that finds a High Risk noncompliance results in the scheduling of a reinspection.

In order to increase the number of facilities monitored per year, the EUB purchased a second mobile air monitoring unit and hired two fully trained technicians to operate it. The EUB Field Surveillance Group also hired Aboriginal staff members. These new group members were brought aboard to increase Aboriginal cultural awareness within the EUB, develop and implement an Aboriginal information program, and develop and implement joint EUB/Indian Oil and Gas Canada (IOGC) workshops.

Emergency Preparedness

Directive 071: Emergency Preparedness and Response Requirements for the Petroleum Industry was revised to provide clear, complete, and concise guidelines and requirements for emergency response plan development and implementation by industry.

This directive consolidated all the EUB's requirements for emergency response planning into one document, eliminating a number of past documents. Updates and revisions were also made to the Alberta Government's *Upstream Petroleum Incident Support Plan*, which details roles and responsibilities of all responders in the event of an upstream petroleum emergency.

A new computer software program called EUBH2S was developed to calculate emergency planning zones (EPZs) using a state-of-the-art dispersion modelling technique. This software will be the base requirement in *Directive 071* for calculating EPZs. The EUBH2S software will also have the ability to calculate the distance to H_2S and SO_2 mandatory evacuation levels required under *Directive 071*.

The EUB will also implement a newly developed emergency response plan assessment protocol. This protocol will test the operator's ability to activate and implement the emergency response plan, along with coordinating specific tasks with other responders.

Information, Communication and Consultation

In response to the growing demand for information, the EUB developed a new section of its Web site targeted directly to the public of Alberta. Reliable information, easy to use and understand, and links to more technical information were high priorities of this initiative. The Web site was launched in June 2005. It contains information on a variety of topics, such as "What Is Sour Gas?" "Audits and Inspections," and "Actions on Public Safety," just to name a few.

A project team was established to identify the sour gas data residing on the EUB's database to determine which additional sour gas data had to be collected and stored within the system. The team is also investigating methods to make the data accessible to EUB and external users.

To provide improved response to inquiries from the public, the EUB established its Customer Contact Centre. It is located in the EUB head office and is staffed by dedicated employees who answer inquiries from the public. The staff have access to all the expertise and resources available within the EUB. In the event that a question cannot be addressed immediately, senior staff may be consulted to help provide complete and accurate responses.

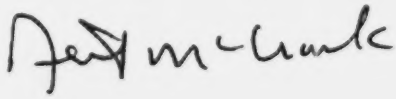
The EUB is not the only source of relevant information for an inquiring public when it comes to sour gas development and operations. New requirements surrounding public consultation have been incorporated into *Directive 056*. These additions require industry to include information about public consultation efforts in all applications submitted to the Board under *Directive 056*. The EUB developed a landowners' guide on proposed oil and gas development that must accompany the notification material that industry is required to give to the public when proposing development. This is all aimed not only at providing better information to the public, but also at giving them an opportunity to voice any questions or concerns they might have directly to the operator of the proposed project.

Alberta is a diverse and multicultural community. In an effort to ensure that the improved communications reach all Albertans, the EUB established an Aboriginal Advisory Committee involving senior leaders from the Aboriginal community and the EUB. The committee provides the EUB Board with advice and guidance on current Aboriginal issues and activities relating to energy and utilities development.

A Positive Outlook in the Years to Come

I have highlighted just a few of the key changes that have been implemented over the last six years, but there are many more. I encourage everyone to read this comprehensive report. The EUB believes that it is imperative that the public have confidence that their safety is being protected. The many actions implemented through the PSSG initiative have greatly enhanced the EUB's regulatory framework to ensure the continued development of Alberta's sour gas resources while providing the high level of public safety expected by all Albertans.

To conclude, I once again thank all our stakeholders for assisting in addressing the recommendations. Without your involvement, our task would have been much more difficult.



Neil McCrank
EUB Chairman

Overview

This is the final report for the Alberta Energy and Utilities Board's (EUB's) Public Safety and Sour Gas (PSSG) Initiative. It reports on all the actions taken or implemented by the EUB and other agencies that assisted it for each of the 87 recommendations from the Provincial Advisory Committee on Public Safety and Sour Gas (Advisory Committee).

With the exception of a few situations where recommendations were combined for continuity with corresponding recommendations, the actions have been grouped into the same five categories used since April 2001 to report progress on the initiative:

- Health Effects and Sour Gas Research
- Sour Gas Development Planning and Approval
- Sour Gas Operations
- Emergency Preparedness
- Information, Communication, and Consultation

A brief summary of the major driver issues and the findings from the Advisory Committee regarding the situation in 2000 are provided at the beginning of each category section. Each summary also includes the EUB's overall objectives for deliverables within each category.

In preparing its work plans, the EUB's Public Safety Implementation Team (PSIT) developed an "Intent" statement for each project within the categories to ensure that PSIT had a clear understanding of the Advisory Committee's intentions for each recommendation or group of recommendations. The Intent statements were reviewed by the Advisory Committee before PSIT proceeded with its work on the projects and are included. As work progressed, some changes were made to the original intent or scope on some of the projects; these are also reflected in the report.

All of the 87 recommendations have been addressed by the EUB and other stakeholders and actions taken towards achieving the specific intent have been adopted by PSIT. Some of the actions have been fully implemented, while others may be at different levels of implementation.

Over the life of the PSSG initiative, the EUB assigned six full-time staff members to the PSIT team, to coordinate and implement the recommendations. In addition, six EUB branches assigned an individual to coordinate the recommendations that were assigned to the branch. As well, more than 200 EUB staff members contributed time and technical expertise on many of the individual recommendations. This does not include the numerous staff members from other government departments and agencies, such as Alberta Health and Wellness, Alberta Environment, Alberta Energy, Alberta Municipal Affairs, Alberta Sustainable Resources Development, Alberta Aboriginal Affairs and Northern Development, Alberta Human Resources and Development, Alberta Agriculture, Emergency Management Alberta, and the Surface Rights Board.

Many local levels of government and their agencies, such as the regional health authorities, local disaster services, the Alberta Association of Municipal Districts and Counties, and the Alberta Urban Municipalities Association, also contributed time and expertise.

The Alberta oil, gas, and pipeline industry through its different associations—the Canadian Association of Petroleum Producers, the Independent Petroleum Association of Canada, the Canadian Energy Pipeline Association, Canadian Association of Drilling Oilwell Contractors, and the Petroleum Services Association of Canada—also provided extensive support in time and technical resources on the initiative.

Many nongovernmental organizations, such the Pembina Institute, Toxic Watch, and numerous synergy groups throughout Alberta also participated in the initiative.

There were also many public at large and Aboriginal representatives on the different stakeholder committees established to work on the individual recommendations.

Over 30 stakeholder committees or project teams, with representation from these different stakeholders, were established to perform or guide the work on the recommendations.

Background

In January 2000, the EUB formed the Advisory Committee to review the regulatory system for sour gas as it relates to public health and safety. All major stakeholders (public, industry, government, and others) were represented on this 22-member committee, which undertook an extensive outreach program to gather information from Albertans residing near sour gas development areas.

Based on the input received, the Advisory Committee made 87 recommendations to the EUB for improving regulatory processes and the understanding of sour gas. The *Public Safety & Sour Gas Findings and Recommendations Final Report* (available on the Web at http://publicsafetyandsourgas.org) was published in December 2000.

Upon receiving the recommendations, the EUB immediately established PSIT to develop an action plan for accomplishing these tasks and to coordinate ongoing implementation. Work on PSSG began in April 2001, when PSIT published the *Public Safety and Sour Gas Implementation Plan: First Progress Report*. The EUB committed to addressing all 87 recommendations in a multiyear program.

At the end of each fiscal year, an annual report was published, summarizing the year's work, as well as the schedule for the following year. These annual reports were reviewed by the Advisory Committee, which prepared a written report on the progress of the work. All of the reports are available on the PSSG project page on the EUB Web site and from EUB Information Services (403-297-8190).

Health Effects and Sour Gas Research

Health Effects and Sour Gas Research

Summary

The seven recommendations in the Health Effects and Sour Gas Research category were grouped into five working projects. The Advisory Committee determined that the major driver issue for this category was "the adequacy of our understanding of the health effects caused by sour gas mixtures."

Situation in 2000

Generally, the Advisory Committee found that there were a number of serious concerns expressed by members of the general public and some other stakeholders on how potential health and safety issues were being addressed. Although the committee found that views were mixed on whether scientists have a clear understanding about the effects of sour gas on public health, it believed that overall there was a low level of understanding regarding the health-related information used by decision-makers in making decisions about sour gas.

To increase public confidence and the understanding of the health effects related to sour gas, the Advisory Committee recommended that specific actions be taken to address the gaps in knowledge through a focused research strategy, ensure that standards reflect the current knowledge about the health effects of sour gas mixtures, and ensure a consistent response by health agencies.

Objectives

In discussions with Alberta Health and Wellness, it was agreed that as the ministry responsible for health, it would take the lead in addressing the set of recommendations under the Health Effects and Sour Gas Research.

The work should focus on the following objectives:

- provide more and better information on hydrogen sulphide (H_2S) and sulphur dioxide (SO_2) to Albertans to ensure that the public is more informed on health effects;
- develop processes to monitor the health effects of H_2S and SO_2; and
- increase research on the health effects of H_2S and SO_2.

Recommendations 9 and 59

9 – The EUB work with Alberta Health and Wellness, regional health authorities, Alberta Environment, Alberta Human Resources, industry, and other stakeholders to ensure that comprehensive health effects information (qualitative and quantitative) is developed, as soon as practical due to its urgency.

59 – The EUB work with Alberta Health and Wellness, regional health authorities, and other stakeholders to develop clear requirements and evacuation criteria to address the hazard of SO_2 as a result of ignition.

Intent

Ensure that comprehensive health effects information is developed. Review the current extent of knowledge regarding the health effects associated with exposure to H_2S and SO_2.

Actions Taken

Alberta Health and Wellness (AHW) developed two specialized reports resulting from comprehensive reviews of research literature on the short-term health effects of H_2S and SO_2.

The first report, *Health Effects Associated with Short-Term Exposure to Low Levels of Hydrogen Sulphide: A Technical Review*, is available to the public on the Alberta Health and Wellness Web site at www.health.gov.ab.ca/resources/publications.html#11.

- The review found that normal healthy adults can tolerate up to 10 ppm H_2S without significant effects. At concentrations above 10 ppm, the clinical studies reviewed were not of sufficient technical quality to permit meaningful assessment of the significance of the findings.

- Based on the review of the non-clinical studies involving the exposure of test animals under controlled conditions, it would appear that short-term exposures to H_2S at lower concentrations (i.e., up to 35 parts per million [ppm]) are well tolerated, with no clear evidence of significant effects.

The second AHW report on SO_2, *Health Effects Associated with Short-Term Exposure to Low Levels of Sulphur Dioxide: A Technical Review*, is also available on the AHW Web site at www.health.gov.ab.ca/resources/publications.html#11.

- The evidence reviewed suggests that for up to 30 minutes, healthy humans can experience exposures to SO_2 up to 10 ppm with only transitory effects on pulmonary function, even under challenging conditions involving hyperventilation, mouth-only exposure, and heavy exercise. Transitory effects may be observed at concentrations as low as 0.75 ppm.

- A weight of evidence evaluation was more difficult for the epidemiology studies. For example, the majority of the studies (107 of 147) were ranked as being of low quality. For those that were ranked as being of moderate quality, an equal number found insignificant or no associations between ambient SO_2 concentration and health outcomes as found an association.

- As in the human studies, the non-clinical animal studies covered a broad range of exposure durations. It was generally found that as the concentration and exposure time increased, there was increasing severity of effect.

Based on the technical review of H_2S, AHW provided the EUB with revised recommended emergency evacuation criteria. The EUB also met with Alberta Workplace Health and Safety and was advised that the Occupational Health and Safety ceiling level of exposure of workers to H_2S was to be reduced from 20 ppm to 10 ppm.

- After further discussions with AHW, the EUB decided to also reduce the emergency evacuation level to 10 ppm to be consistent with the worker level, even though the science would support the existing 20 ppm level. The 10 ppm level will be used as the new mandatory evacuation levels for H_2S in *Directive 071: Emergency Preparedness and Response Requirements for the Petroleum Industry.*

- The current emergency evacuation criterion for SO_2 of 5 ppm (15-minute average), 1 ppm (3-minute average), and 0.3 (24-hour average) will not be changed, as the scientific literature continues to support these levels.

Recommendations 10 and 11

10 – The EUB, Alberta Health and Wellness, Alberta Environment, Alberta Agriculture Food and Rural Development, Alberta Research Council, regional health authorities, industry, and other interested parties including Alberta universities, jointly establish an independent Scientific Review and Advisory Committee to provide recommendations on required research programs related to sour gas and health.

11 – The EUB work with the Alberta Government to ensure financial support is available to address gaps in research respecting the health effects of sour gas. Such research should complement the multi-government Western Canada Study on Animal and Human Health Effects Associated with Exposure to Flare Emissions.

Intent

Ensure that appropriate research related to sour gas and human health takes place.

Actions Taken

Initiatives such as the Community Exposure and Health Effects Assessment – SO_2, Western Inter-Provincial Scientific Studies Association (an animal health study), the Caroline Livestock Health Study, and the Rutgers University human exposures and health study have addressed or are addressing several significant aspects of the health research recommendations.

The Community Exposure and Health Effects Assessment Program provides measures of potential exposure to environmental hazards and helps determine if industrial development is affecting the health of communities. Identifying differences in disease rates helps to detect potential causes of these differences. Both these functions help protect the health of Albertans. Community assessments, such as the ones identified below, are available on the AHW Web site at www.health.gov.ab.ca/resources/publications.html#11:

- Wabamun and Area Community Exposure and Health Effects Assessment Program, Final Report (August 2006)
- Wabamun and Area Community Exposure and Health Effects Assessment Program, Summary Report (August 2006)
- In 2006 the Western Inter-Provincial Scientific Studies Association (WISSA) concluded a six-year study of cattle herds near oil and gas facilities in western Canada and found few associations between emissions and the overall health of cattle. The $17 million study, the most comprehensive of its kind ever completed, involved the collection and analysis of data from about 33 000 cattle in 205 herds in Alberta, Saskatchewan, and northeast British Columbia and was conducted under an ongoing peer review process by a science advisory panel of 11 internationally renowned researchers and scientists. More information on this study is available on the Web at www.wissa.info.
- In Alberta, the Caroline Livestock study began as a condition of Shell Canada's 1990 EUB approval to build the Caroline sour gas processing plant located 170 kilometres (km) northwest of Calgary between the communities of Sundre and Caroline. Livestock monitoring began in 1991. The study was designed to answer two questions:
  - Did health and productivity of area herds change after the Shell Caroline Gas Plant start-up?
  - Did health and productivity of area herds differ from published benchmarks? If so, did any known risk factors contribute to health and production shortfalls?

  The study includes seven herds with about 1200 animals annually. Results show that average herd health and productivity did not change after the start-up of the Caroline gas plant and that average

health and productivity of herds in the study is near or above that expected from published benchmarks. More information on this study is available on the Web at www.spog.ab.ca/livestock.

- A new study, *Exposure to Low Levels of Hydrogen Sulphide—Symptoms, Sensory Function and Cognitive Performance*, on humans is now under way at Rutgers University in the United States. This study is exposing volunteers to levels of 0.05 ppm of H_2S, 0.5 ppm H_2S, and 5.0 ppm of H_2S in random order one week apart. More information on this study is available on the Web at www.rutgers.edu.

- A strategy is being developed by a multistakeholder team representing health professionals, environmental groups, the public, and other government agencies and departments, that may lead to a pilot project central call centre staffed by medical professionals. This centre could act as a central information collection and dissemination point that could determine the need for further sour gas-related health research and/or actions.

Recommendation 12

Alberta Health and Wellness work with regional health authorities and physicians, through the Alberta Medical Association, to ensure a consistent, appropriate, and coordinated response to individuals exposed to major H_2S releases.

Intent

Provide a 24-hour, 7-day-per-week medical information response for individuals exposed to a high dose of H_2S. Medical professionals would use this service in the treatment of H_2S exposures.

Actions Taken

AHW, Alberta Medical Association, and Alberta Human Resources and Employment have developed clinical practice guidelines for H_2S exposure. These provide medical practitioners with information that will standardize the response to H_2S exposure. Further information on these guidelines is on the Web at www.topalbertadoctors.org/TOP/CPG/SourGasExposure/ Sour+Gas+Exposure.

Recommendation 13

The EUB work with Alberta Health and Wellness and Alberta Human Resources to establish a high-level exposure registry to track individuals who have been knocked down or had other substantial exposures to sour gas.

Intent

Establish a high-level exposure registry to track and provide follow-up for individuals who have experienced high-level exposure to H2S. Initially, this would include workers and may be expanded to include affected members of the public.

Actions Taken

Significant issues related to confidentiality and security make this recommendation impossible to implement. The feasibility was investigated by AHW and found to be not practical in the face of the privacy concerns.

Recommendation 67

The EUB, with the assistance of industry and researchers, promote and support the development of exposure monitors that can be used to measure personal exposure of the public to sour gas-related substances in a practical manner.

Intent

Develop a reliable personal monitor capable of measuring low-level exposures to H_2S, in order to address health concerns and issues and to further expand knowledge of the subsequent health effects of such exposures. Develop plans and protocols for how and when these monitors would be used and how the data collected would be reported and used.

Actions Taken

An advanced prototype exposure monitoring unit was developed and field tested. Funding for the development of additional prototype units for field testing was not secured. Field testing was conducted and found that the prototype could monitor in the parts per billion with acceptable accuracy. However, miniaturization of the unit and commercial production/development proved very difficult. Funding solutions were evaluated and future work was being considered.

However, over the past few years since this recommendation was made, significant advances have been made by private industry in developing and marketing small personal H_2S monitors with exposure monitoring capacity in the parts-per-billion range. These are now readily available. Protocols will be implemented for the use of these devices as they are further developed and perfected and should the need become apparent.

Sour Gas Development Planning and Approval

Sour Gas Development Planning and Approval

Summary

The 24 recommendations within the Sour Gas Development Planning and Approval category were grouped into 11 working projects. The Advisory Committee determined that there were two major driver issues for this category:

- the need to clarify jurisdictional roles and establish coordinated surface and subsurface planning, and
- the adequacy of the EUB approval and regulatory systems for sour gas as they relate to public health and safety.

Situation in 2000

Numerous provincial government departments and agencies and local government are involved in sour gas in some way. The Advisory Committee heard that there was a lack of public confidence in the regulatory system and believed there was a need to clarify roles, responsibilities, and accountability for various jurisdictions, while ensuring that the system is effective and efficient. Efforts were also needed to ensure that the public and industry understand the various jurisdictions. There was also little planning and coordination between surface and subsurface development.

Concerns were raised regarding the application and decision-making processes of the EUB. These included perceived bias in favour of industry, commitments made during negotiation or hearings that were not fulfilled by industry, a hearing process that was intimidating, and decision reports that did not convey clearly to the public, the reasoning behind the decisions.

Objectives

To address the recommendations in the Sour Gas Development Planning and Approval category, PSIT believed it should focus its work on the following objectives:

- Reduce the impact of sour gas development on the public by
  - clarifying and improving jurisdictional roles and responsibilities between different agencies and levels of government respecting sour gas and public health and safety, and
  - introducing processes to improve coordination between surface and subsurface planning and development of sour gas near people.
- Increase recognition of the public's interests and ensure that this is taken into account by Board panels during the hearing process.
- Improve cooperation between the EUB and other government agencies when developing energy regulations, requirements, standards, and processes.
- Reassure the public that health and safety issues are addressed through
  - industry consultation with the public on sour gas development,
  - the application development process,
  - the application review process undertaken by EUB staff, and
  - ensuring that all EUB decisions are made by fully informed and technically qualified personnel.
- Reassure the public that energy development is undertaken by an appropriately trained industry.

Recommendations 1, 2, 3, 4, and 84

1 – In its role as the principal regulator of the Alberta oil and gas industry, the EUB work with provincial and federal government departments, municipalities, regional health authorities, tribal councils, IOGC, IRC, INAC, and any other agency that has jurisdiction respecting the impacts of sour gas on public health and safety in Alberta to

- *clarify roles, responsibilities, and relationships respecting sour gas and public health and safety,*
- *identify and eliminate any gaps in the system, and*
- *identify overlaps in jurisdiction and either eliminate the overlap or develop formal working agreements to avoid unnecessary duplication and confusion as to responsibilities.*

2 – The working relationships between the EUB and other involved jurisdictions (particularly the regional health authorities, municipalities, Municipal Affairs Disaster Services, Alberta Environment, and Alberta Health and Wellness) need to be strengthened to include meaningful involvement of the jurisdictions in establishing effective and efficient standards, criteria, policies, and processes for dealing with the public health and safety aspects of sour gas facility applications.

3 - The working relationships established between the EUB and IOGC, IRC, INAC and other relevant federal government departments recognize the different jurisdictional circumstances respecting First Nations.

4- The EUB work with other involved parties to prepare a sour gas and public health and safety roles and responsibilities document and a summary brochure and widely distribute them to the public, industry, and other interested parties. These documents should be concisely written in understandable language and make clear who should be contacted to answer questions, deal with complaints and concerns, and report emergencies.

84 – The EUB work with federal and other government departments to ensure that the relationship among federal and provincial government departments, First Nations and Métis communities, and adjacent municipalities is clear, that gaps in regulation are eliminated, and that areas of overlap are handled efficiently through the necessary agreements. This matter is also dealt with in recommendations 1 and 3.

Intent

The EUB coordinate its work with that of other agencies that have jurisdiction respecting the impacts of sour gas on public health and safety in Alberta to ensure that gaps in regulation are identified and resolved and areas of overlap are handled efficiently through mutual agreements.

Actions Taken

A document was prepared by the EUB's Law Branch in response to Recommendations 1, 2, 3, and 84, which require clarification of the roles and responsibilities of the provincial and federal entitles, including First Nations organizations, that have jurisdiction respecting the impacts of sour gas on public health and safety in Alberta. The recommendations further require the identification and, where practical, the elimination of any jurisdictional gaps or overlaps between the regulators.

The Law Branch conducted a comprehensive review, with cooperation and input from all of the regulators. This included

- reviewing legislation relevant to each entity,
- reviewing existing agreements between the EUB and other regulators,
- reviewing other PSSG recommendations and initiatives that involve the regulators,
- reviewing the EUB's *ACC Acheson 2-26-52-26, Acheson Field, December 2004 Blowout* investigation report on the Acclaim Energy Inc. incident, and
- meeting with a number of the regulators to better understand roles and responsibilities.

Based on that review, the Law Branch assessed potential gaps and overlaps between the regulators in the areas of environmental assessment, approvals to construct and operate sour gas facilities, surveillance and enforcement, and emergency management. It concluded that while some jurisdictional overlap existed in each of these four areas, the regulators recognized and managed this through formal and informal agreements among them. The Law Branch further concluded that jurisdictional overlap as it relates to emergency response is generally deliberate and intended to ensure the protection of public health and safety. While the Law Branch did not identify any significant gaps between the regulators with respect to emergency response, it made the following recommendations:

- The EUB should undertake a review of all its agreements with other regulators to ensure that they are up to date and consistent. A list of these agreements should be made public. The EUB has an action plan in place to review the agreements.

- The regulators responsible for emergency response to upstream petroleum industry emergencies should conduct regular emergency response exercises to ensure appropriate communication and response. Regularly scheduled exercises are planned under the *Alberta Petroleum Industry Incident Support Plan.*

- The EUB, Emergency Management Alberta (EMA), and the other regulators should meet with First Nations in Alberta so that each agency's role is explained and the coordination of emergency planning is clarified.
  - Alberta has 46 First Nations communities, which are not bound by the *Alberta Disaster Services Act*. However, since 1990 emergency preparedness for these communities has been administered by Alberta Disaster Services (now EMA) under a memorandum of understanding (MOU) between Indian and Northern Affairs Canada (INAC) and EMA.
  - The MOU relates to preparedness and to response assistance and recovery support, the latter two with respect to advice and coordination only. INAC is responsible for funding all mitigation activities, the provision of first responder assets and infrastructure, and funding for response activities and recovery needs.
  - EMA has two First Nations officers, each responsible for half of the First Nations communities. These officers perform the same duties as the EMA district officers do for the municipal communities, coordinating the provision of the entire Disaster Services programs to their assigned communities.
  - In general, the First Nations officer delivers the full program, culturally sensitized to all 46 communities. In place of a Municipal Emergency Plan (MEP), an Emergency Operations Plan (EOP) template, identical to the MEP except culturally sensitized, is used.
  - First Nations communities have annexes to their plans for industry. Agreements between industry and these communities for support defined in the industry emergency response plans (ERPs) has been negotiated and written into both plans exactly the same as with a non-First Nations community.

- The EUB should issue a brochure to explain the roles and responsibilities of the primary regulators and provide contact phone numbers for each of these regulators. The EUB has published *EnerFAQs 14: Public Health and Safety Roles and Responsibilities of Agencies That Regulate Upstream Oil and Gas.*

- The recommendations of the Acclaim investigation report should be implemented as soon as possible. All of the recommendations from the report have been adopted and are in different stages of implementation by the EUB.

Recommendation 5

The immediate formation of a task force of senior decision makers that would investigate the possibility of improving coordination between subsurface and surface planning and development.

Intent

Investigate possible ways to reduce the immediate interface between large populations and sour gas developments, both geographically and in time, resulting in reduced conflict between sour gas development infrastructure and land surface development through improved, longer-range, and cooperative planning of both activities.

Actions Taken

A Senior Steering Committee, co-chaired by the chairman of the EUB and the deputy minister of Alberta Energy, was struck. Deputy Ministers from SRD, Alberta Environment (AENV), AMA, and Alberta Aboriginal Affairs and Northern Development (AAND) also sat on the committee. The Senior Steering Committee appointed a Working Level Committee to undertake an investigation to identify possible ways to improve the coordination between surface development and sour gas developments. The investigation focused on opportunities for improved long-range and cooperative planning for both activities. The Working Level Committee prepared the report *The Investigation of Improved Coordination of Surface/Subsurface Planning and Development in Sour Gas Areas near People: Finding, Gaps and Opportunities*, which it submitted to the Senior Steering Committee.

The Working Level Committee's comprehensive investigation included

- an in-depth review of actions taken in the Calgary area to coordinate the recovery of sour gas reserves with surface development,
- a series of stakeholder interviews with industry, municipalities, landowners/residents, developers, synergy groups, and legal counsels for industry and residents,
- a review of the existing regulatory processes and policies of those government departments and agencies with mandates related to surface and subsurface development,
- an evaluation of existing or potential mechanisms to facilitate information sharing with those parties that may be able to use it to improve coordination, and
- an examination of potential areas in the province where test studies for coordination might be undertaken.

It was apparent that the lack of strategic provincial policies providing clear direction to provincial departments and agencies responsible for addressing the issues surrounding sour gas development was the major gap hampering surface/subsurface coordination. Therefore the most important opportunity identified in this report was the need to develop high-level land-use and resource policies that address the relationship between surface and subsurface development in sour gas areas near people. The policies should establish clear land-use and resource priorities and should stress the need for coordinated planning and the early recovery of sour gas reserves in areas of conflict.

The Working Level Committee determined that there were six areas where further investigation was warranted by the appropriate government department or agency:

- strategic policy direction regarding land-use and sour gas development,
- municipal and provincial land-use planning processes,
- Crown mineral rights disposition,
- the role of the EUB in coordinated planning and development,

- the availability of sour gas information, and
- the early recovery of sour gas reserves.

Within each of these areas, the Working Level Committee identified

- findings: the present conditions and realities,
- gaps: regulatory, economic, social, legal and political barriers that, to some extent, impede coordination, and
- opportunities: areas where government policy and regulatory systems could be enhanced or changed to improve coordination.

It also identified opportunities that could assist in improving the coordination of planning and development in sour gas areas near people. These opportunities have the potential to aid in reducing future conflicts and focus on

- examining strategic land-use and resource policy at the provincial level to ensure that departments and agencies have the necessary direction and mandate to coordinate planning and development,
- reviewing and, if appropriate, revising existing legislation and administrative procedures to strengthen provisions that facilitate surface/subsurface coordination,
- ensuring that sour gas information is readily available to all parties, and
- reviewing and, if appropriate, developing strategies to encourage early resource recovery in areas of surface/subsurface conflict.

Each department or agency would decide whether further action should be taken.

Further opportunities were also identified for investigation by the appropriate agency:

- Establish clear land-use and resource recovery priorities in areas where surface and subsurface development may conflict.
- Review and, if appropriate, amend the *Municipal Government Act* to include provisions requiring all statutory plans for areas affected by sour gas extraction to address surface/subsurface coordination in sour gas areas near people, consistent with the provincial *Land Use Framework*.
- Review and, if appropriate, amend the *Municipal Government Act* to include a provision requiring municipalities to also consult with mineral rights owners/lease/licence holders as part of the annexation application process.
- Review and, if appropriate, amend the *Municipal Government Act* to require subdivision and development appeal boards and the Municipal Government Board to adhere to sour gas development setbacks when ruling on appeals.
- Reintroduce the specific setback distance required for each level of sour gas facility in the *Subdivision and Development Regulation*.
- Review and, if appropriate, amend the provincial *Land Use Policies* to include specific provisions related to improving planning and coordination of surface/subsurface development in sour gas areas near people, consistent with the provincial *Land Use Framework*.
- Develop a strategy or process to recognize significant efficiencies through more effective and timely information sharing and collaborative planning among municipal governments, regulators, industry,

landowners, and developers earlier in the development process (i.e., as soon as practicable after mineral rights have been sold).

- Evaluate the range of options available for notification of mineral rights sales to ensure that this information is available to the public in a more user-friendly format (including map format). This information would allow surface rights holders to better track the potential development of mineral resources under their land after the rights have been sold.

- Evaluate the merits of including a generic "buyer beware" notification on Crown mineral rights requested for public offering that would advise industry that they must inform themselves of potential limitations or restrictions to subsurface development outside those identified through the Crown Mineral Disposition Review Committee process.

- Continue identification, by the EUB, of site-specific opportunities to conduct outreach programs that facilitate coordinated planning and development.

- Develop policies/procedures/legislation that would allow the EUB to enhance its role of facilitating the initial implementation of coordinated surface/subsurface planning and development.

- Continue to ensure that sour gas information is accurate, up to date, and easily accessible for all stakeholders.

- Monitor the effectiveness of the use of the administrative tools available to the EUB and tenure tools available to Alberta Energy that encourage and facilitate accelerated production in sour gas areas near people; and depending on the outcome, consider enhancements and changes to those tools that would assist this process.

- Develop policies and strategies on a provincial level that support early recovery of sour gas reserves but allow municipalities to precede with surface development options if efforts to encourage and achieve accelerated recovery meet with minimal success.

The investigation has shown that the issues are very complex and that there are no quick or easy solutions, but all the opportunities identified in this report should be considered if significant improvements are to be achieved.

Clear direction on land-use priorities is critical. The development of policy to address this represents the most important opportunity identified. The policy should establish clear land-use and resource priorities and should stress the need for coordinated planning and the early recovery of sour gas reserves in areas of conflict. Improved coordination depends on the cooperation of all levels of government and all impacted stakeholders.

Finally, it is important to note that many of the actions implemented under specific recommendations, such as 1, 2, 3, 6, 7, 16, 32, 33, 34, 84, and some of the others related to communication with the public, will collectively improve the coordination between subsurface and surface development.

The "findings, gaps, and opportunities" report has been submitted to the co-chairmen of the Senior Steering Committee for the committee's review to determine if further action is warranted.

The EUB has also formed a project team to focus on the development of a process to provide sour gas data to municipalities, and it is working with two synergy groups to monitor sour gas development in the northeast area around the City of Calgary.

Recommendation 6

Adoption by the EUB of the recommendation that there be more rigid enforcement by the EUB of its gas plant proliferation policy as presented in the report recently submitted to the EUB by the Sulphur Recovery Guidelines Review Group.

Intent

To ensure that the EUB enforces its policies with respect to planned proliferation by requiring every proponent of new sour gas processing facilities to fully evaluate alternatives to new plants in terms of environmental and public impacts before applying to the EUB and that the EUB ensures that new sour gas plants are justifiable in terms of need and minimizing adverse impacts of overall sour gas development.

Actions Taken

Recommendations of Sulphur Recovery Guidelines Review Advisory Group (SRGRAG) in *Interim Directive (ID) 2001-03: Sulphur Recovery Guidelines for Province of Alberta* were incorporated into *Directive 056* as detailed requirements for proliferation assessment, including a flowchart outlining the evaluation process.

Recommendations 7, 32, and 33

7 – Revisions to EUB guides to require operators to include in their applications for critical sour wells, pipelines, and facilities a review and discussion of options to utilize existing sour gas infrastructure in the area in order to minimize the extent to which the public is impacted by additional sour gas development.

32 – The EUB support area planning among operators and require well applications to include at least general information regarding existing and possible future area plans where sour gas is involved near people.

33 – For sour gas near people, the EUB require project plans as part of well applications where a well is part of a larger project of the applicant and encourage applications for more than one well and facility at one time where feasible.

Intent

Minimize the impacts of sour gas development by encouraging or requiring operators to conduct a proliferation assessment of existing sour gas infrastructure before applying for new facilities, share information regarding existing and possible future area plans, and submit more than one well or facility application at a time where sour gas is involved near people.

Actions Taken

Bulletin 2004-08: Sour Gas Development Planning and Proliferation Assessment, released on May 17, 2004, introduced Industry Recommended Practices (IRP) and applies to all new sour gas well, pipeline, and facility developments where there are people in the emergency planning zone (EPZ) or adjacent to it who desire planning information or a proliferation assessment to understand potential impacts.

- A two-year trial use of the IRP began in spring 2004, during which EUB staff proactively supported the use of the IRP and gathered data on its use and effectiveness. A multistakeholder Oversight Committee was used to monitor and evaluate the trial.
- In summer 2006 the trial was completed and the Oversight Committee prepared a report detailing the results of the trial, which will be released in May 2007.
- During the two-year trial period, projects were monitored for adherence to the IRP. The report found that the trial contributed to the awareness of the IRP and its improved use. It was found that the IRP was being followed in more nonroutine instances, and there has been an increase in project submissions in which a number of wells and pipelines are filed as a project.
- Although the Oversight Committee did see an increase in the use of the IRP during the trial, it recommends in the report that requirements for the use of the IRP should be implemented by the EUB.
- The EUB will implement these requirements in 2007.

Recommendations 17, 18, and 19

17 – The EUB, in cooperation with stakeholders, develop a framework and methodology for standardizing dispersion modelling and probabilistic risk assessment that will provide clarity to the industry and the public.

18 – The EUB require that users of sour gas hazard and probabilistic risk assessment techniques clearly state their methods and assumptions.

19 – The EUB be responsible for reviewing and updating its standard models and methods regularly.

Intent

Establish and maintain standardized criteria for use in dispersion modelling and risk analysis.

Actions Taken

EUB staff developed the EUBH2S computer software program with technical assistance from two dispersion experts and extensive stakeholder input. This software is able to calculate EPZs using state-of-the-art dispersion modelling techniques. It is the most sophisticated and advanced model currently used to calculate EPZs anywhere in the world and will have the ability to calculate the H_2S and SO_2 mandatory evacuation levels that will be required under *Directive 071: Emergency Preparedness and Response Requirements for the Petroleum Industry* for sour wells, sour pipelines, and sour production facilities.

The EUB is revising *Directive 071* to address these recommendations and require the use of the EUBH2S software.

EUBH2S is a complex tool that calculates site-specific EPZs using thermodynamics, fluid dynamics, atmospheric dispersion modelling, and toxicology. It is a desktop tool for undertaking more realistic site-specific predictions of a sour gas release using a state-of-the-art dispersion model. Computer models only approximate real-life scenarios, meaning that they should always be used with caution and within the limitations of the model. When used carefully and skilfully, they are a good tool for undertaking hazard assessment.

A hazard assessment is a multicomponent and iterative task with many assumptions and judgements. In order to determine an EPZ, the primary issue to be determined is how far a potentially lethal H_2S plume could spread under poor atmospheric dispersion conditions during a major sour gas release. In this context, the inputs (the numbers the computer model uses to make the calculations) into EUBH2S carefully balance hazard and safety and ensure that the EPZ is representative, yet still errs on the side of public safety.

The resulting EPZ calculated by EUBH2S is a best estimate for facilitating responsible emergency response planning by the industrial operator. To ensure that a preplanned, immediate, and effective response may be accomplished, the application of the absolute worst parameters at each stage in the complex calculation has been avoided. Applying worst-case parameters would result in an EPZ that is not representative of the hazard. However, the model contains many safety factors and accounts for uncertainty and variability in many of the key parameters.

In addition to the calculation of the hazard distance represented by the EPZ, the EUBH2S also predicts potential hazard distances to the mandatory evacuation levels for H_2S and SO_2. This information is useful to the industrial operator and local authorities in preparing their respective ERPs and the coordinated roles and responsibilities of each party.

As stated above, EUBH2S is for emergency response planning by the industrial operator. It does not consider the likelihood or probability that an incident will occur. Risk includes both consequence and likelihood, and future software based on EUBH2S is intended to be developed to address the risk components of these recommendations. Some initial work has been completed in the form of a draft report on pipeline failure frequencies and well blowouts.

To ensure that EUBH2S is continually reviewed and regularly updated, the EUB engages an expert on air dispersion modelling. Other staff members in the EUB's Public Safety Group will also develop expertise on the use of EUBH2S.

The use, scientific support, and general description of the EUBH2S dispersion model are described at the following sites:

- www.eub.ca/docs/public/sourgas/eubmodelsdraft/Directive071_PrefaceDraft_200612.pdf
- www.eub.ca/docs/public/sourgas/eubmodelsdraft/Volume1_TechnicalReference.pdf
- www.eub.ca/docs/public/sourgas/eubmodelsdraft/Volume2_ERPEndPoints.pdf
- www.eub.ca/docs/public/sourgas/eubmodelsdraft/Volume3_UserGuide.pdf

Recommendation 20

The EUB consolidate, to the degree possible, all of its regulatory requirements related to sour gas, and develop a single, concise document that summarizes all of its sour gas-related requirements and widely distribute the summary document.

Intent

To have one source document that summarizes all regulatory requirements related to sour gas.

Actions Taken

The EUB determined that a summary document of all sour gas requirements would have been very cumbersome and lengthy. Therefore, in order to provide information and ease of access to the requirements, it was decided to develop an electronic index cross referencing all sour gas-related regulatory requirements. The requirements are by subject topic in regulations and directives. This document will be updated regularly. The summary document is called Sour Gas Index and is on the EUB Web site: EUB Home: Public Zone : Sour Gas : Sour Gas Index.

Recommendation 34

The EUB increase and improve coordination between itself and Alberta Environment, other involved government departments, and municipality and regional health officials.

Intent

The EUB should develop a system that allows for the involvement of relevant government agencies in the development of EUB policies, processes, and practices and, where appropriate, in the sour gas application processes.

Actions Taken

Two protocols were developed, one with the Alberta Association of Municipal Districts and Counties (AAMDC), Alberta Urban Municipalities Association (AUMA), and AMA and the other with AHW, Health Canada's First Nations and Inuit Health Branch (FNIHB), and regional health authorities. The protocols commit the parties to using the following processes with the objective of bringing about greater collaboration and cooperation on sour gas issues:

- Engage local health and municipal authorities whenever the EUB undertakes a review of its regulatory requirements or requires input into an EUB policy or process.
- Establish regional dialogue processes to enhance the working relationship and increase understanding between EUB staff and representatives from local health and municipal authorities on oil and gas issues.
- Take a continuous improvement approach to the EUB applications process and emergency response planning process as a whole.

The approach to the dialogue process underwent a two-year test period and the evaluation of its effectiveness was positive. A report will be produced in the first half of 2007.

The dialogue process will also be incorporated into the EUB operational plans. The EUB has a standing commitment to improve its application process when such opportunities are identified. The involvement of the many parties in the EUB's regulatory/policy review process has become a normal function.

The two protocols are on the EUB Web site at
www.eub.ca/docs/public/sourgas/PSSG_Rec34_HealthProtocol.pdf and
www.eub.ca/docs/public/sourgas/PSSG_Rec34_LocalAuthoritiesProtocol.pdf.

Recommendation 35

The EUB carry out a more detailed staff review of critical sour well applications immediately upon their filing and before licensing of the well. In other words, there would be no "routine" designation for critical sour well applications.

Intent

The EUB ensure that applications processes require a thorough review of critical sour gas well applications against all requirements, whether or not they are going to hearing, to ensure that all requirements are being met before approvals are issued.

Actions Taken

"Routine" designation for critical sour well applications was ended with the October 2000 revision of *Directive 056*.

Recommendation 36

The EUB require information in applications for critical sour wells that demonstrates how the applicant will ensure that involved employees will be trained and certified in accordance with the standards.

Intent

Development of regulatory approaches that require and verify that qualified staff are responsible for drilling, completion, and operation of critical wells.

Actions Taken

In response to the recommendation, EUB staff compiled an inventory of the current training, certification, and design requirements for drilling, completion, and operations of critical sour wells. The inventory included

- EUB critical sour gas requirements and guidelines relating to industry staff training and certification,
- industry critical sour gas standards and manuals, and
- EUB acts and regulations and related EUB directives (formerly "guides"), informational letters, interim directives, and bulletins.

The EUB Facilities Applications Branch currently conducts a detailed preapproval review of all critical wells based on *ID 97-6: Sour Well Licensing and Drilling* and the Canadian Petroleum Safety Council's *IRP Volume 1: Drilling Critical Sour Wells*. Together, these documents detail the requirements and standards that industry must adhere to when planning, drilling, and completing a critical sour well. EUB staff review all critical sour well licence applications prior to approval to ensure that standards and requirements for completing a critical sour well are met regarding

- drilling and planning practices and standards,
- design requirements and standards,
- monitoring and safety equipment,
- certification, training, and experience for supervisor staff, rig crew, service personnel, safety specialists, and key on-site personnel,
- insurance requirements, and
- emergency response.

Recommendations 38, 41, 42, 43, and 44

38 – The EUB ensure adequate preparation time for hearings regarding sour gas facilities where there are public health and safety concerns.

41 – The EUB increase recognition of public input in decision reports and provide more descriptive material regarding the criteria used in evaluating the public interest and the manner in which surface, subsurface, individual, and other interests (including health impacts, safety, nuisance effects, and the environment) are balanced in evaluating the public interest.

42 – The EUB recognize the past performance of the applicant as an operator of sour gas facilities elsewhere in the province when making decisions respecting proposed sour gas facilities.

43 – The EUB ensure that appropriate expertise in special subject areas, such as health and probabilistic risk assessment, is available in the form of staff, consultants, EUB Board Members, and Acting Board Members to participate in decisions and to ensure that these subject areas are appropriately dealt with in decision reports.

44 – The EUB record public health and safety-related commitments and undertakings given by applicants and better ensure that these are fulfilled.

Intent

The five recommendations focus on improving the EUB hearing process so that the public can effectively participate and is aware of the manner in which EUB panels evaluate and balance matters of public concern when making decisions on sour gas developments. The EUB hearing process should

- ensure that adequate expertise is available to advise EUB panels on issues related to sour gas development;
- provide all parties with an adequate opportunity to become informed and prepare for the hearing process;
- be transparent in how evidence provided by hearing participants is understood and considered in reaching conclusions;
- ensure that commitments made by applicants and conditions imposed by the Board are subsequently fulfilled; and
- consider applicant's past performance when making decisions about proposed sour gas facilities.

Actions Taken

Recommendation 38

EUB staff will continue to consult with applicants and interveners to schedule or reschedule hearings and in doing so will take into account seasonal activities, such as harvesting, with a view to ensuring that parties have sufficient preparation time.

The EUB will continue to hold information sessions with the public well in advance of hearings to ensure that potential interveners are informed about the hearing process and the types of resources and support that can be provided by the EUB and other parties. EUB staff will use prehearing meetings to outline issues and explain the benefits of an interrogatory process to all parties.

The EUB will continue to consult with intervener groups at EUB information sessions to discuss process issues, such as timing, experts, and submissions.

Between 2004 and 2006, EUB staff conducted follow-up interviews with participants in the prehearing and hearing process to evaluate their satisfaction with the processes.

Recommendation 41
EUB decision reports will include an evaluation of pertinent evidence and the reasons for the Board's decisions.

An EUB committee of senior staff across many areas of the organization reviewed procedures for writing decision reports, with a view to making improvements. One of the objectives was to ensure that the documents are consistent and user friendly. The committee also made improvements with a view to ensuring that all decision reports clearly demonstrate how evidence introduced by the public has been evaluated and considered by the Board.

Recommendation 42
The EUB made a series of internal process changes to ensure that past performance of applicants is considered in the applications process. The past experience of proponents is taken into account when reviewing applications for critical sour gas wells. When an application is scheduled for a public hearing, the Applications Group audit team manually researches and prepares a corporate profile, which includes the applicant's corporate and audit history.

Recommendation 43
EUB staff will actively identify issues to determine what type of expertise is required and available for a hearing.

Staff will continue to work with Board panels to ensure that a range of expertise is available for EUB hearings (e.g., a veterinary doctor is available to sit as an Acting Board Member). Board panels have access to technical experts when needed in areas such as health, potential environmental impacts, and facilities engineering. At present, EUB staff are evaluating the need for access to more expert services, whether on a full-time or contract basis.

A full-time employee was hired in July 2003 to analyze customer satisfaction with the overall hearing process. EUB public hearing participants were interviewed, and the results were used to measure such items as

- the adequacy of timelines set for the process,
- participants' understanding of the process, and
- participants' confidence that they were treated fairly and that their concerns were heard by the hearing panel.

The interview results are being used to make continual improvements.

Recommendation 44
EUB hearing coordinators now develop and implement action plans to track and monitor conditions attached to decision reports. An external audit of action plans was completed in spring and summer 2003. Results from the audit were used to make improvements to existing procedures.

Recommendations 39 and 40

39 – The EUB increase efforts to make hearings less formal and more user-friendly.

40 – The EUB rewrite its brochure, Guide 29, on the hearing process to make it more understandable and then make it more widely available to the public.

Intent

Improve public understanding of the hearing process so that hearings are less intimidating to the public and more efficient when they are held, while continuing to provide a process that safeguards the rights of all parties.

Actions Taken

The following documents were published in January 2003:

Revised *Directive 029: Energy and Utility Development Applications and the Hearing Process* and its companion brochure, *Energy and Utility Development Applications, the Hearing Process, and Cost Awards* were published in January 2003 and made available to the public and all other stakeholders. Their primary purpose is to further assist members of the public who wish to participate in the EUB hearing process. A video to accompany *Directive 029* has also been produced and is available from the EUB head office in Calgary or one of its Field Centres.

Sour Gas Operations

Sour Gas Operations

Summary

The 18 recommendations within the Sour Gas Operations category were grouped into 16 working projects. The Advisory Committee determined that the major driver issue for this category was the adequacy of the EUB approval and regulatory systems for sour gas as they relate to public health and safety.

Situation in 2000

Concerns were raised that the rules and regulations regarding sour gas were so scattered that it was difficult to know what they were. Also noted were concerns that existing regulations were not adequate—for example, on older sour pipelines and standing wells or on converting sweet facilities to sour. Concerns were raised regarding the application and decision-making processes of the EUB.

The committee spoke of concerns about the EUB being slow to respond to complaints, placing too great a reliance on complaints as a basis of enforcement, and the need for greater involvement by field staff in inspections and enforcement of regulations.

Objectives

To address the recommendations within the Sour Gas Operations category, PSIT focused its work on the following objectives:

- clear, concise regulatory requirements and processes that reflect best technology and operating practice,
- effective compliance, enforcement, and complaints response processes that are validated by assessment,
- awareness by the public and industry of rules and regulations, and voluntary compliance by industry with rules and regulations, and
- awareness by the public and industry of enforcement actions taken by the EUB for noncompliance.

Recommendation 8

Revisions to EUB guides to encourage operators to consider methods for reducing the visual and psychological impacts of sour gas facilities near people.

Intent

Soften the visual impact and impressionable effects of sour facilities near people without inadvertently causing additional hazards.

Actions Taken

The EUB contracted graduate students at the University of Calgary to undertake a literature search on existing requirements and guidelines from other regulators and jurisdictions regarding reducing the visual and impressionable effects of industrial facilities. The literature search was completed and results were delivered to the EUB in March 2003. As a result, EUB *EnerFAQs No. 8: Proposed Oil and Gas Development: A Landowner's Guide* includes a statement encouraging operators to address visuals impacts of oil and gas facilities.

Recommendation 21

The EUB review its requirements respecting older sour gas pipelines and the performance history of such pipelines to ensure that adequate attention is being focused on the possibility of corrosion-related or other types of leaks.

Intent

Ensure that pipeline requirements focus adequate attention on corrosion-related and other types of leaks.

Actions Taken

- *Directive 066: Pipeline Inspection Manual* was developed and implemented in November 2001.
- EUB Field Surveillance developed a program that prioritizes inspections based on previous *o*perator history, *s*ensitivity of the site, and the *i*nherent risk of the facility. This OSI program for pipelines was implemented in April 2002 and continues to be used to evaluate pipeline corrosion mitigation programs.
- The program was reviewed and approved by the Alberta Auditor General's Office.
- The Canadian Standard Association (CSA) technical committee was asked to consider additional requirements for sour gas pipelines.

Recommendation 22

The EUB implement stronger measures to safeguard against third-party damage to sour gas pipelines.

Intent

Provide options that may reduce the possibility of sour gas pipelines incurring third-party damage.

Actions Taken

The following requirements have been incorporated into the *Pipeline Regulation*:

- All pipeline operators must participate in Alberta One-Call.
- Anyone excavating in the vicinity of a pipeline must contact Alberta One-Call as part of the search for a pipeline.

Recommendation 23

The EUB review its requirements for approving the reclassification of sweet gas facilities to sour service and for the reactivation of older sour wells that have not been produced for ten or more years.

Intent

To ensure that

- if a service change occurs from sweet to sour, a trigger mechanism is in place to confirm adherence to sour gas requirements, and
- if sour wells and facilities have been inactive for an extended period, requirements are in place for operators to properly suspend the well or facility and to confirm the integrity of production and well equipment prior to its return to service.

Actions Taken

- All the EUB requirements regarding the reclassification of sweet to sour service were reviewed and the needed changes implemented.
- EUB *Directive 056: Energy Development Applications and Schedules* requires a facility amendment for any sweet facility conversion to sour service. Primary items reviewed and confirmed include matters related to public safety (release rates, setbacks, ERPs), air emissions, notification requirements, and proliferation policy. Management of facility vessel, pressure piping, and metallurgical design requirements or standards fall under the jurisdiction of the Alberta Boilers Association, which certifies vessels and pressure piping under the *Safety Code Act* and regulations administered by Municipal Affairs.
- *Directive 013: Suspension Requirements for Wells*, for suspending and reactivating suspended wells, was issued by the EUB in December 2004. It requires licensees of suspended wells to inspect service and pressure test the wellhead, inspect and service control systems and lease facilities, and report reactivation of the well on the EUB's Digital Data Submission (DDS) system and retain records. For medium- and high-risk wells, the licensee must also pressure test casing and tubing. These requirements apply to any inactive critical sour and inactive acid gas disposal well that has not reported any type of volumetric activity for six consecutive months, as well as to all other inactive wells that have not reported any volumetric activity for 12 consecutive months.

Recommendation 24

The EUB publicize the requirements to get an existing pipeline or well reclassified to sour service, in order to dispel the appearance that it is easy to do so.

Intent

Review and publicize the current requirements to convert existing pipelines to sour service.

Actions Taken

- In October 2004, the document *Reference Tool for Sour Service Conversion of Existing Carbon Steel Pipelines* was posted on the EUB Web site on the *Directive 056* page. It refers to the *Pipeline Regulation* and CSA standards and highlights requirements contained in *Directive 056* and demonstrates that a detailed engineering assessment must be undertaken by any company wishing to convert a non-sour service pipeline to sour service. The company must provide the EUB with information on technical compliance with respect to pipeline material, design, construction, and non-destructive testing, as well as pipeline integrity.

- An article publicizing the requirements for sweet to sour pipeline conversion was published in the EUB's *Across the Board* in April 2005.

Recommendation 25

The EUB increase the frequency of inspections and audits and continue to conduct both arranged and unannounced inspections of sour gas operations and develop simple, practical ways of informing nearby residents of inspection and audit results.

Intent

The EUB increase the frequency of inspections and ERP audits, continue to conduct both arranged and unarranged inspections of sour gas operations, and develop simple, practical ways of informing nearby residents of inspections and ERP audit results.

Actions Taken

- EUB Field Surveillance modified its inspection priority system (OSI), which increased the inspection frequency on sour facilities.
- EUB Field Surveillance is now contacting residents within the EPZ when an inspection or audit is done to ensure that the residents are aware of the company's ERP.
- EUB inspection results are also reviewed with residents.

Recommendation 26

The EUB increase inspections and audits for operators without a proven track record in sour gas operations and for those with a history of noncompliance.

Intent

The EUB increase the frequency of inspections and audits for operators without a proven track record in sour gas operations and those with a history of noncompliance.

Actions Taken

- Modifications of the EUB's priority inspection system (OSI) to ensure that all new facilities are selected for mandatory inspection.
- Any facility with a major or serious inspection result is now scheduled for one additional reinspection.

Recommendation 27

The EUB inspect critical sour wells located near people at least once during or immediately prior to drilling of the critical zone and inform nearby people of the inspection results.

Intent

Increase the frequency of inspections of critical sour wells.

Actions Taken

Effective September 1, 2001, the EUB Field Surveillance inspects all critical wells near people at least once during or immediately prior to drilling of the critical zone.

- The EUB developed a resident contact form and letter to assist field staff to communicate sour gas inspection results to the public.

Recommendation 28

The EUB give highest priority to sour gas complaints, investigating them within one day, whenever possible, and always following up with the complainant.

Intent

The EUB give the highest priority to sour gas complaints, investigate them within one day, whenever possible, and always follows up with the complainant.

Actions Taken

- Complaint response and investigation has been assigned as one of the EUB's Field Surveillance highest priorities. Field staff respond to all complaints related to upstream oil and gas activities, with the goal of ensuring prompt, effective, and lasting resolution to the problems identified. All complaints are investigated, and upon request field staff will conduct follow-up visits with the complainant to discuss the results of the investigation.

- If a public complaint is received that is outside the EUB's jurisdiction, the complainant is promptly directed to the appropriate government agency so the matter can be addressed.

- In order to continually improve the level of satisfaction with both EUB and industry responses, a random complaint call-back survey is conducted each month. This information is analyzed to ensure that appropriate complaint response procedures are being used and any questions or concerns are addressed. Results of the 2005 survey indicated that
  - 89.7 per cent of the individuals surveyed said their concerns were satisfactorily resolved, compared to 70 per cent in 2004;
  - 56 per cent of the individuals surveyed were satisfied with the licensee's response, compared to 53.5 in 2004; and
  - 96.3 per cent of the individuals were satisfied with the response from the EUB, compared to 92.7 per cent in 2004.

  The EUB will continue with its complaint call-back survey to gauge whether we are responding effectively to the public.

Recommendations 30 and 31

30 - The EUB, when dealing with sour gas operations, consider alterations to the enforcement ladder to involve fewer, faster steps and more severe sanctions where there is a potential threat to public health and safety.
31 - The EUB increase the extent to which it makes available the names of companies and the enforcement actions taken where there are major and serious infractions, as defined by the enforcement ladder, of sour gas regulations related to public health and safety.

Intent

Consider alterations to the enforcement ladder to ensure fewer, faster, and more severe sanctions where there is a potential threat to public health and safety and to make enforcement actions on major and serious infractions public.

Actions Taken

- As part of the EUB's commitment to continual regulatory improvement, the EUB reviewed its compliance strategy. A comprehensive compliance assurance plan has been developed that builds on the strengths of our present compliance strategy. The new strategy includes prevention, education, and information before noncompliance occurs and, should a noncompliance event occur, responsive, appropriate enforcement.

  To implement this new strategy, the EUB issued *Directive 019: EUB Compliance Assurance—Enforcement*, which updates the EUB's enforcement process to improve process clarity, focus, and efficiency but is still built on the principles that

  - public safety and environmental will not be compromised,
  - enforcement will be timely, effective, and appropriate, and
  - the licensee is responsible for compliance with EUB requirements and processes.

- The EUB uses a Risk Assessment Matrix to predetermine the level of risk inherent in the noncompliance for each EUB requirement. Each requirement has an associated Low Risk or High Risk rating based on

  - health and safety,
  - environmental impact,
  - conservation, and
  - stakeholder confidence in the regulatory process.

- The EUB classifies all of its requirements as Low or High Risk and makes the classifications available on its Web site.
- *Directive 019* outlines compliance management processes, including consequences for Low Risk and High Risk noncompliances.

Recommendation 49

The EUB review its requirements respecting sour gas drilling and completion, sour gas operations, and other industry practices and equipment to ensure they maintain pace with improvements in technology.

Intent

The EUB establish a process to ensure that EUB requirements continually reflect appropriate and proven techniques and practices that provide a safe environment for workers and the public.

Actions Taken

- The EUB already has many processes to meet the intent and proactively participates in technology reviews and policy formulation with stakeholders. Specific examples of EUB participation are
  - International/National: World Bank Flaring/Venting Initiative, Canadian Standards Association (CSA) Z731-03 Emergency Preparedness, CSA Z662 Oil and Gas Pipeline Systems, and CSA Z341 Storage of Hydrocarbons in Underground Formations
  - Provincial: Drilling and Completions Committee (DACC), Canadian Petroleum Safety Council, Petroleum Industry Training Service (PITS) course development, and CAPP Well Construction Committee
  - Internal: Abandonment Integrity Study, Compliance Assurance Initiative, Ignition of Sour Gas Wells Study
- The EUB will continue its participation in these types of technology reviews and will seek other opportunities to ensure that its requirements continually reflect the most up-to-date and proven techniques and practices.

Recommendation 50

The EUB, in conjunction with industry and appropriate educational institutions, confirm or establish the necessary requirements to ensure adequate training and knowledge of sour gas workers.

Intent

To ensure that workers in Alberta's sour gas industry have appropriate safety training to provide for the highest possible standards of worker and public safety.

Actions Taken

The EUB contracted J.A. Hemstock and Associates Ltd. to research and assess current safety training requirements for workers on wells, pipelines, and facilities in the upstream petroleum industry and to provide findings by way of a written report. Positions with a designated trade status, positions involving construction work or heavy oil operations, and positions involved in the design or engineering of upstream oil and gas operations were excluded from the review.

The consultant researched approximately 160 oilfield position titles for employee training requirements and found that the requirements were outlined in broad, general terms through legislation and became more specific in regulation and/or industry practice. The Hemstock report provides details on the position titles researched in the review and summarizes training requirements by position, title, and source document.

The Hemstock report indicated that all identified legislated or regulated training requirements can be provided by existing training providers, such as the Petroleum Industry Training Service (now called Enform).

Enform works with industry to continually review and update courses and also works with various industry groups to identify training needs and develop corresponding training programs where there is a demand. Enform offers numerous regulatory-required courses for industry, on a scheduled or custom basis, with many programs offering certification.

Industry training can also be provided in-house by contract service providers, with programs tailored specific to a company's needs. Frequently there are no testing requirements for the course and while it may appear that the focus is only on attendance, participants are expected to apply their training to specific job functions and to demonstrate competency in their positions. Employers are required to show due diligence in assessing employee competency to satisfy Workplace Health and Safety requirements and insurance company concerns. The EUB believes that the Hemstock report verifies that current delivery of programs meets the training requirements for workers on wells, pipelines, and facilities.

The report identifies positions involved in well site operations where the Canadian Association of Oilwell Drilling Contractors (CAODC) and the Petroleum Services Association of Canada (PSAC) are developing or have developed apprenticeship and competency programs in conjunction with Enform. The programs establish the needs requirements for each position and demonstrate industry commitment to developing training programs and career paths for oilfield workers.

However, the Hemstock report also identified a gap in regulatory or legislative standards or agreed-upon competency levels for emergency planners and responders. The EUB believes that its surveillance processes, such as the initial review and approval procedures, the newly implemented Emergency Response Assessment Program (Recommendations 55 and 56), and our involvement in ERP exercises are a backstop to this identified gap.

The EUB will work with CAPP's Emergency Response Committee and a training provider to develop a program for emergency response training.

The EUB believes that the Hemstock review verifies that current delivery of programs meets the training requirements for workers on wells, pipelines, and facilities and confirms that industry is committed to supporting the necessary training and certification processes for oilfield workers.

Recommendations 52 and 53

52 – Once the framework and methodology for dispersion modelling and probabilistic risk assessment methodology have been developed (recommendation 17), the EUB use them as the basis for a review of the current criteria for sour gas setbacks.

53 – The EUB should initiate a review of the implications of setbacks on the ability to develop property.

Intent

Verify the role of setbacks as a tool in risk management to protect public safety and assess the fairness of the restrictions and impacts on landowners.

Actions Taken

Recommendation 52

- A work has been developed to review the adequacy of sour gas setbacks. The EUBH2S program will be modified to include a probabilistic risk assessment component, which will facilitate the review of setbacks. The overall scope of the assessment will
  - classify the original intent of a setback and determine if it is still valid,
  - confirm the criteria used to determine the existing sweet well and sour gas well, pipeline, and facility setbacks and determine whether criteria are still appropriate,
  - determine the acceptable risk or range of risks for a sweet well (100 m) and level 1, 2, 3, and 4 sour wells, pipelines, and facilities,
  - based on risk, assess whether the current setback sizes are appropriate,
  - assess potential implications of changing the setback sizes, and
  - determine ant other factors that should be considered.

Recommendation 53

- A multistakeholder committee reviewed the economic impact of setbacks with the assistance of a consultant. Case studies were selected and information gathered on each case study. The report *A Review of the Implications of Sour Gas Setbacks on the Ability to Develop Property September 2005* was completed and is available on the EUB Web site at www.eub.ca/docs/public/sourgas/PSSG_Rec53_FinalReport.pdf.
- Quantitative economic impacts were determined where possible across the case studies, with a wide range of results being identified. However, the report concluded that quantitative impacts are case specific and therefore cannot be extrapolated to determine a cumulative provincial impact. The report also found that many of the sour gas setback conflicts were often mitigated through the actions of one or more of the parties involved.
- The report contains a number of recommendations that centre on three board areas where improvements could be made to reduce or further mitigate the economic impact. These areas are improving the understanding and communication of information on setbacks; closing some identified gaps in the regulations, processes and practices; and investigating methods to reduce the interface between surface and subsurface development.
- The EUB developed an action plan to address each of the report's recommendations. The recommendations and the EUB's action on each recommendation are as follows:

- Recommendation: *The EUB and the municipalities should develop a common definition of required setback distances. There should be a common understanding of the setback distances required with respect to public safety, public health risk and nuisance factors. This would provide a greater degree of certainly to landowners/developers in evaluating development opportunities.*

- Action: Through PSSG Recommendation 52, the EUB is reviewing the current criteria for sour gas setbacks, which include assessing whether there is a need for one common set of setback requirements between all jurisdictions.

- Recommendation: *As the prime repository of information on sour gas facilities, the EUB should continue its efforts to ensure that sour gas facility information is accurate, complete and current. It should also continue to explore ways including advancing the work undertaken for Recommendation 16 to provide easily accessible information, including mapping, to municipalities.*

- Action: The EUB is continually investigating and implementing methods to improve the availability of sour gas information to all stakeholders through the consultation protocols established under PSSG Recommendation 34. The EUB continues to raise the sour gas information issue with the Alberta Urban Municipalities Association, Alberta Association of Municipal Districts and Counties, and Municipal Affairs

- Recommendation: *EUB* General Bulletin (GB) 99-04: Land Development Information Package *should be updated, if necessary, and distributed to stakeholders on regular basis. (It was found that setback requirements were less understood in municipalities that did not deal with the issue on a regular basis). In addition, the diagram in* EnerFAQs No. 5*: Explaining* EUB Setbacks *illustrating setbacks distances in different settings should be clarified to provide a better understanding of setback requirements and related definitions (e.g., there was some confusion over the definition of an urban centre).*

- Action: The EUB is reviewing *GB 99-04* to determine if it should be updated. In addition, EUB Communications is currently reviewing and updating all of its EnerFAQs, including the setback details covered in *EnerFAQs No. 5*.

- Recommendation: *Pipeline operators should be required to demonstrate the current operational status (and related classification level) [versus licensed] when a legitimate surface conflict arises due to setbacks. If it can be determined that both the surface and subsurface development can be maximized with a lower classification level, this option should be considered, in recognition of the potential impacts on the landowner.*

- Action: Since the EUB's current process accommodates any affected party asking the Board to review the licence of an existing pipeline, the EUB does not see a need to take any further action on this recommendation.

- Recommendation: *The R53 Committee strongly supports the work underway with regard to Recommendation 5 and recommends that the findings of Recommendation 53 be shared with this and other related PSSG initiatives identified throughout this report.*

- Action: The report for Recommendation 53 has been shared with all members of the Provincial Advisory Committee and with members of the Recommendation 5 team. The report will also be shared with those involved in other related initiatives. No further action required on this recommendation.

- Recommendation: *To raise the level of awareness about setbacks, the EUB, Alberta Municipal Affairs, First Nations and the oil and gas industry should encourage sour gas setback issues to be placed on the convention/seminar agendas of a number of pertinent stakeholder groups.*

- Actions: The EUB has already made a commitment to AAMDC and the AUMA that EUB staff will be available to speak on any oil and gas issues that impact them, including setbacks.

  Through the Community and Aboriginal Relations process, the EUB informs its Aboriginal Advisory Committee that EUB staff are available to speak to their communities on setback issues.

  The EUB continues to proactively seek opportunities to speak to stakeholders.

  The EUB encourages CAPP and other oil and gas industry associations to take every opportunity to speak to different stakeholder groups about setbacks.

- Recommendation: *The notification and consultations of the obligations of the municipalities with respect to surface planning and development should include specific notification to potentially impacted subsurface mineral rights holders.*

- Action: This issue will be considered in conjunction with PSSG Recommendation 5. Municipal Affairs is a participant in this process and will be made aware of this recommendation for consideration.

- Recommendation: *The Surface Rights Board should examine its processes to ensure they are sufficiently comprehensive to address issues related to economic impacts due to sour gas setbacks.*

- Action: The Surface Rights Board was represented on the R53 Stakeholder Steering Committee, and Alberta Sustainable Resource Development, the ministry responsible for the Surface Rights Board, is aware of these recommendations.

- Recommendation: *The oil and gas industry should be encouraged where possible to accelerate production and deplete resources within a set timeframe in order to provide a level of certainty to landowners and land developers as to when their lands can be developed.*

- Action: Accelerated depletion has conservation considerations and, in turn, would likely require additional wells and facilities and/or a reduction in the spacing of wells. This issue is being considered under PSSG Recommendation 5 and other initiatives such as the Alberta Government's Upstream Oil and Gas Policy Integration Project.

- Recommendation: *Landowners and municipalities should be aware of the EUB ADR process as a potential for appropriate dispute resolution when conflicts arise outside the EUB application process.*

- Action: The EUB's ADR process is currently available for resolving conflicts that are outside the application process. It is important to note that the ADR process cannot be used to resolve conflicts strictly related to matters of compensation. However, compensation matters, in conjunction with other issues, have been resolved through the ADR process. The EUB will continue to communicate the availability of the ADR process.

Recommendation 68

The EUB enhance its capability to conduct monitoring as part of its complaint response and compliance programs.

Intent

Improve the EUB's air monitoring capabilities to provide effective response to complaints and to determine exceedance of ambient air guidelines and take appropriate corrective action.

Actions Taken

The EUB

- purchased a second mobile air-monitoring unit,
- hired two fully trained air-monitoring technicians, and
- increased the number of facilities monitored per year.

In 2005 there were 768 monitoring inspections, compared to 461 inspections in 2002, an increase of 60 per cent over the four-year period.

In addition to conducting monitoring inspections and responding to public complaints, the mobile monitoring units are on standby to respond to emergencies.

Recommendation 78

The EUB encourage the development of mutual aid agreements where there are multiple operators in an area.

Intent

Encourage development of mutual aid agreements where there are multiple operators in an area, and attempt to provide one central contact in an area for public concerns/complaints.

Actions Taken

Where there are multiple operators in an area, the EUB Public Safety/Field Surveillance Branch encourages the establishment of multistakeholder contact groups to provide a one-window concept for addressing issues. Where these groups do not exist, the contact database developed in conjunction with Recommendation 77 will satisfy the intent of Recommendation 78.

A comprehensive 32-question survey was developed and sent to more than 65 active groups dealing with issues related to oil and gas activities. The purpose of the survey was to

- determine the number of active community groups,
- better understand their issues,
- identify issues that have been resolved, and
- better support them through improved communication.

The results have been entered into an internal database, which will be maintained and updated by Public Safety/Field Surveillance. To date there are 48 active community groups in the database, with additional surveys still being completed and submitted.

The EUB's definition of a community group is one that has been organized to address specific issues related to oil and gas activities. This includes synergy, coalition, mutual aid, and multistakeholder groups. Letters are being sent to each community group in the database to follow up on information requested through the survey and to initiate better communication between the EUB and individual groups and also among the groups themselves. A written process was developed to ensure that the database will be maintained and updated and that communication needs of the individual groups are documented and followed up on.

Public Safety/Field Surveillance has initiated joint meetings involving EUB staff and multiple operators in sour fields. The purpose of these meetings is to bring the operators together to

- review EUB regulations and requirements,
- share and implement best practices to eliminate off-lease odours (e.g., transferring sour fluids in pressurized trucks, maintenance on sour vessels and storage tanks),
- establish mutual aid agreements to develop working relationships to monitor operations in the sour field,
- assist one another when operational problems are identified, and
- provide one central contact for public concerns.

The first area operators meeting, attended by 13 companies with sour facilities in the area, was held in June 2003 in Big Valley. A presentation by the EUB included discussion on self-disclosure of noncompliance with regulations, EUB flaring policy, EUB enforcement ladders, and a review of *Directive*

064: Facility Inspection Manual. Information on best practices for transferring sour fluids and maintenance on sour vessels and storage tanks was shared.

Public Safety/Field Surveillance's operational business plan now includes plans to hold regularly scheduled operator awareness meetings with all operators in all areas where oil and gas activities are taking place, as well as in sour gas areas where there is currently no active community group.

Recommendations 82 and 85

82 -The EUB engage appropriate staff, including First Nations persons, to ensure more interaction among the EUB, Aboriginal people, and industry (including contractors).

85 - The EUB ensure the existence in First Nations and Métis communities near sour gas developments, of a good complaint and incident response program that would have monitoring capability and surveillance and monitoring programs that provide good information on general air quality.

Intent

Improve communications systems among First Nations and Métis communities, the EUB, and industry operators in isolated communities and where language may be a barrier and improve the effectiveness of EUB processes as they relate to Aboriginal communities and improve the First Nations' and Métis communities' awareness and understanding of EUB operations.

Actions Taken

EUB field staff visited 52 Aboriginal communities, with up to 10 follow-up visits. A program to visit all Aboriginal communities by the end of 2004 was accomplished, and a survey was sent in late 2004 to gauge program effectiveness. This work is ongoing and is incorporated into the Community and Aboriginal Relations Section of the Public Safety/Field Surveillance business plan.

In 2006, the EUB created the Public Safety/Field Surveillance Branch (merging the Public Safety Group into the Field Surveillance Branch) to ensure an ongoing public safety focal point within the organization. The Public Safety Group has two sections: Emergency Planning and Assessment, and Community and Aboriginal Relations. Roles and responsibilities of the sections were incorporated into its operational plan.

- The Public Safety/Field Surveillance Branch of the EUB has hired Aboriginal staff members to work with Aboriginal communities to improve their awareness and understanding of the EUB and the oil and gas industry.
- Aboriginal Cultural Awareness Training has been given to all Public Safety/Field Surveillance staff and other staff members of the EUB.
- The EUB has developed and implemented an Aboriginal Information Program.
- Joint workshops with the EUB and Indian Oil and Gas were held.

Emergency Preparedness

Emergency Preparedness

Summary

The 14 recommendations in the Emergency Preparedness category were grouped into eight projects. The Advisory Committee determined that the major driver issue for this category was the adequacy of the EUB approval and regulatory systems for sour gas as they relate to public health and safety.

Situation in 2000

The Advisory Committee noted that members of the public, health providers, municipal representatives, and members of the petroleum industry expressed concerns about current ERP requirements, the approach used to determine the size of an EPZ, and the use of reduced EPZs, among other issues. The committee saw a need for clearer, more prescriptive ERP requirements.

Objectives

To address the recommendations regarding emergency preparedness, PSIT focused its work on the two following objectives:

- Ensure that the EUB has a clear, concise regulatory framework for emergency preparedness and response.
- Develop a method to assess the ability of industry, local government, and all other appropriate responders to implement ERPs.

Recommendation 15

The EUB, industry, Alberta Environment, Alberta Health and Wellness, regional health authorities, and federal regulators, as required, ensure that there is a thorough follow-up process after major sour gas releases (such as well blowouts or pipeline failures) to determine impacts and identify opportunities for response improvement.

Intent

To ensure a thorough assessment of the impacts of a major sour gas release and have the parties involved ensure continuous improvement in the prevention and response processes.

Actions Taken

- EUB implemented its *Incident Response and Reporting Protocol (IRRP)* in January 2003.
- The *Alberta Upstream Petroleum Industry Incident Support Plan* was reviewed and updated. It now includes Appendix Q: *Follow-up Process after Major Sour Gas Release to Determine Impacts.*

In August 2005 the EUB issued a report on the blowout that occurred on December 12, 2004, at a well owned by Acclaim Energy Inc. in the Acheson Field in the County of Parkland just west of Edmonton city limits. The report details the EUB's investigation into the incident and outlines 16 recommendations on matters ranging from operations to emergency response to environmental impacts. All of these recommendations have been implemented by the EUB. Several key recommendations and actions taken were:

- The EUB coordinate a review of the *Upstream Petroleum Incident Support Plan* (UPISP) to consider municipal, provincial and, where applicable, federal jurisdictional issues, roles, responsibilities, and inconsistencies between emergency response documents. The UPISP has undergone review and changes are being implemented. It has been renamed the *Petroleum Industry Incident Support Plan* (PIISP). As part of the changes, the EUB made improvements to *Directive 026: Setback Requirements for Oil Effluent Pipelines*. Additionally, the EUB now employs a full-time incident investigator on its staff..
- The EUB update *Directive 071* to direct licensees to communicate ERP information to well site personnel prior to conducting any well servicing on a sour well, where a site-specific ERP is not required and consider *requiring* licensees to notify and advise the EUB of all sour gas workovers before commencing operations. *Directive 071* has been updated to include these changes.
- The EUB ensure that there is a sufficient level of coordination and communication among its groups responsible for public safety during an emergency. Changes made to *Directive 026* will ensure more effective communication.

Recommendations 54, 60, and 61

54 – The EUB continue its current approach of reviewing all site-specific ERPs in detail, including the criteria used to determine the size of the EPZ, and all site-specific information included in an ERP.

60 – The EUB require industry to use the EUB's current standard approach (EPZ curves) to determine EPZs until the review of EPZs proposed in recommendation 58 is completed.

61 – In the interim until the review of the approach to EPZs is completed the EUB not approve a reduced EPZ unless it is conditional on the immediate ignition of the well, and the EUB is satisfied that the well can be immediately ignited and kept continuously burning. The EUB must also be satisfied that the ERP adequately addresses the potential hazards to the public within the reduced zone and also within an awareness zone out to the distance of the calculated EPZ based on the current EUB approach (EPZ curves), and that a specific assessment demonstrates protection of human health.

Intent

Ensure that all ERPs meet EUB requirements and adequately address site-specific matters prior to approval. Ensure that every EPZ is defined based on appropriate criteria, using the EUB standard approach. Ensure that approval of a reduced EPZ does not impact human health by also reducing ERP resources or response time to the area.

Actions Taken

The EUB issued *Interim Directive (ID) 2001-05: Public Safety and Sour Gas Policy Implementation Recommendations 54, 60, and 61 Site-Specific Emergency Response Plans for Sour Gas Operations, Emergency Planning Zones and Reduced Planning Zones*, which clarified and confirmed that the EUB

- reviews all site-specific ERPs;
- requires the continued use of the EUB's existing standard EPZ curves;
- allows the use of reduced EPZs contingent on immediate ignition if
  - calculated EPZs are very large,
  - large population densities exist, and
  - evacuation could be impractical;
- requires a concise plan for a reduced zone;
- requires a concise plan for a twice-reduced-EPZ to address the potential hazard of SO_2 and residual H_2S following ignition of the well;
- requires a detailed communications plan to keep the public informed on each hazard (H_2S and SO_2) situation; and
- requires preapproval of a reduced EPZ.

Once the new procedures for calculating an EPZ are implemented and revisions are made to *Directive 071*, this ID will be rescinded.

Recommendations 55 and 56

55 – The EUB assess the capability of an operator to effectively implement an ERP at the time of application, and develop specific requirements to cover ERP validation through mandatory testing and exercises.

56 – The EUB audit existing ERPs on a more frequent basis to ensure that

- *the operator has the capability to implement its ERP,*
- *plans are updated according to requirements regarding frequency of updates,*
- *updating takes place immediately upon change of operator ship and prior to a new operator physically operating the facility, and*
- *adequate communication of updates with EPZ residents and emergency responders takes place.*

Intent

Ensure that a process exists to assess the operator's capability to implement ERPs and maintain an appropriate level of emergency preparedness.

Actions Taken

- An Emergency Response Plan Assessment/Inspection Protocol has been developed and implemented following pilot projects to test the protocol, which included completion of five audits. The protocol will test the operator's capability to implement its ERP and coordination with other responders. Its main objectives are to
  - assess the capability of an operator to implement its ERP,
  - verify that the operator has identified and addressed the necessary components of the ERP,
  - ensure that emergency response procedures are coordinated among all parties, and
  - verify the accuracy of key identified and geographical components of the ERP.
- The EUB Public Safety Emergency Planning and Assessment Group will continue to do upfront reviews and approvals of ERPs, but will shift its focus to assessing an operator's capability to implement its plan.
- *Directive 071* details the specific requirements for companies to exercise their ERPs on a regular basis through either tabletop or major exercises. After each exercise, a licensee must develop a report of exercise results to be maintained for assessment purposes. The report must contain the following information:
  - type of exercise held
  - scope and objectives
  - persons involved
  - outcome (objectives achieved)
  - lessons learned
  - action plan
- EUB staff regularly attend industry ERP exercises and provide constructive feedback to the licensee based on the regulator's perspective of the exercise. *Directive 071* also includes requirements for facility ERP updates, ERP updates upon change of ownership, and communication between resident and responder when a licensee updates its ERP.
- Since full implementation of the protocol in 2006, the Emergency Planning and Assessment Group has done six assessments on existing facility ERPs and is establishing goals for how many audits will be performed annually. Assessment specialists have been added to the Emergency Planning and Assessment Group to perform the assessments.

Recommendations 57, 63, and 64

57 – The EUB require the operator to coordinate roles and responsibilities to be followed in the event of an emergency with other emergency responders through early and effective discussions with the municipal Director of Disaster Services and regional health authority's Medical Officer of Health during plan development.

63 – The EUB encourage operators to establish mutual aid agreements in areas with intensive industry development and multiple operators.

64 – The EUB continue its initiative to work with stakeholders to develop clear, complete, and concise guidelines and requirements for ERP development and implementation.

Intent

Ensure that operators have clear, complete, and concise guidelines and requirements for ERP development and implementation that ensure an appropriate level of emergency preparedness. The requirements should reflect an approach based on the current state of scientific understanding and technology. Requirements must address the involvement of all responders.

Actions Taken

- The EUB developed and implemented *Directive 071: Emergency Preparedness and Response Requirements for the Petroleum Industry*. This directive provides clear, complete, and concise guidelines and requirements for ERP development and implementation. It consolidated all of the EUB's requirements for emergency response planning within one document, allowing the EUB to rescind in whole or in part many interim directives and informational letters, including:
  - *ID-OG-76-2: Emergency Procedure Plans for Sour Gas Facilities*
  - *ID 90-1: Completion and Servicing of Sour Wells,* Section 3: ERPs
  - *ID 91-2: Corporate Level Emergency Response Plans*
  - *ID 97-6: Sour Well Licensing & Drilling Requirements,* Section 3: Sour Well ERPs
  - *IL 87-8: Emergency Response Plans for Sour Gas Facilities*
  - *IL 88-17: Ignition Equipment for Drilling Critical Sour Wells*
  - *IL 89-15: Evacuation and Ignition for Sour Wells*
  - *IL 90-17: Emergency Procedure Plans for Sour Gas Facilities, Biennial Meetings*
  - *IL 99-01: Spill Equipment Deployment, Training Exercise Approvals and Report Summaries*
- *Directive 071* is currently undergoing further revisions to improve the requirements. A revised directive is expected to be released in fall 2007. Some of the key changes being made to the directive are
  - utilization of the new EUBH2S software to calculate EPZs,
  - a new ignition policy for sour gas releases and more comprehensive sheltering procedures and policy,
  - definitions of the emergency response levels and the associated mandatory actions,
  - a reduction in the mandatory evacuation level of H_2S from 20 ppm to 10 ppm.
  - the clear expectation that coordination of roles and responsibilities with the local municipal authorities, the directors of Disaster Services for all municipalities within and adjacent to the EPZ, the medical officer of health (or designate), and/or the director of environmental health services of affected regional health authorities and/or environmental health officers for First

Nations and Inuit Branch Health Canada must be well understood and agreed to prior to conducting public involvement.

- clarification of a licensee's responsibility for emergency response procedures for the entire gathering system. Any licensee of the gathering system associated with the facility must enter into a cooperative mutual aid agreement with the facility licensee operator to ensure appropriate initial response. A licensee that requires the response of others or the use of resources from other responders should enter into mutual aid agreements with other parties, including other industry licensees and local authorities.

In addition, EUB Field Surveillance holds regular meetings with operators to encourage mutual aid, and organizing these meetings is part of its business plan. CAPP has also published a reference document *Mutual Aid Agreements for Emergency Response Guidelines*.

An *Industry Recommended Practices on Critical Sour Underbalanced Drilling* was also published in January 2004.

Recommendations 58 and 62

58 – The EUB review the approach it uses for determining EPZs on the basis of the health effects information (recommendation 9) and the review of dispersion modelling and probabilistic risk assessment methodology (recommendation 17).

62 – The EUB require the operator to identify in the ERPs filed with the EUB and emergency response agencies, using dispersion modelling, the distance to where the mandatory evacuation levels for H_2S (20 ppm, 3-minute average) and SO_2 (5 ppm, 15-minute average) could be experienced.

Intent

Review current criteria used for establishing the size of EPZs and determine if changes are required.

Actions Taken

- The EUBH2S computer software developed under Recommendation 17 calculates EPZs using state-of-the-art dispersion modelling techniques.
- EUBH2S is the base requirement in *Directive 071* for calculating EPZs.
- EUBH2S can calculate the H_2S and SO_2 mandatory evacuation levels, required under *Directive 071*.

Recommendation 65

The EUB undertake a review of the current monitoring response capabilities for events involving significant sour gas releases and ensure that adequate capability exists.

Intent

Ensure that the EUB has adequate monitoring capabilities.

Actions Taken

- An inventory was compiled of the available equipment (stationary and mobile) throughout the province, including locations and equipment capabilities. The Lodgepole Blowout Inquiry recommendations were reviewed to identify any shortfalls, potential requirements, and additional strategic locations where monitoring equipment should be available in the event of an emergency. The inventory concluded that
  - 29 mobile and 53 stationary air-monitoring units are available, which are adequate to ensure a quick response to a significant sour gas release;
  - equipment is strategically located throughout the province; and
  - the range, reliability and capability of the mobile and stationary air monitoring equipment are superior to anything that previously existed.
- The EUB developed an air monitoring protocol for its staff to ensure a consistent approach for gathering, recording, and analyzing air monitoring results.
- The EUB also wrote an air monitoring inspection guide that outlines quality assurance and quality control (QA/QC) calibration procedures to be followed by field staff when using the air monitoring equipment.

Recommendation 66

The EUB, in cooperation with other emergency or episodic responders, ensure that the monitoring roles and responsibilities are clearly defined and that monitoring efforts and capabilities are coordinated.

Intent

To ensure that the air quality monitoring roles, responsibilities, and protocols of emergency and complaint responders are clearly defined, understood, accepted, and coordinated in order to respond quickly and to determine if releases could have adverse impacts on public health and safety based on established standards. If so, to ensure that appropriate public protective measures are taken.

Actions Taken

- The Alberta *Upstream Petroleum Incident Support Plan* (*UPISP*) underwent a review and was reissued in June 2003. The 2003 plan then underwent a second review in 2005/06, as a result of the Acclaim Energy incident, and is now called the *Petroleum Industry Incident Support Plan* (*PIISP*). *PIISP* defines the air monitoring roles and responsibilities. Alberta Environment is assigned the lead role.

Recommendation 87

The EUB work with Indian and Northern Affairs Canada (INAC), Health Canada (regarding First Nations), and Alberta Municipal Affairs (regarding Métis Settlements) to provide adequate infrastructure and resources to the First Nations and Métis for planning and development of disaster services capability.

Intent

Ensure that adequate infrastructure and resources are available for First Nations and Métis communities in sour gas areas to plan and implement a response to a sour gas emergency.

Actions Taken

- The EUB, with input from Emergency Management Alberta (EMA), INAC, Health Canada, and the EUB's Aboriginal Advisor, reviewed the programs in place for First Nations and Métis for planning and development of disaster services capability.
  - Advice received from EMA indicated that the recommendation has been and is being addressed with respect to the delivery and coordination of emergency preparedness programs for First Nations and Métis communities.
  - INAC is responsible for delivery and provision of resources and infrastructure to First Nations.
  - The EUB and EMA would not be involved with a non-First Nations or Métis municipality respecting funding for infrastructure or resource and therefore it should also not be involved in funding infrastructure and resources to First Nations and Métis settlements.
- The Chairman of the EUB sent a letter to INAC indicating that
  - the EUB supports the existing arrangements between INAC and EMA to ensure the delivery of preparedness programs to the First Nations in Alberta, and
  - the EUB trusts that INAC will continue to assess First Nations communities, particularly those that may be impacted by sour gas facilities, to ensure that they have adequate resources and infrastructure for their communities to maintain a sufficient level of emergency response preparedness.

Information, Communication, and Consultation

Information, Communication, and Consultation

Summary

The 24 recommendations in the Information, Communication, and Consultation category were grouped into 16 projects. The Advisory Committee believed the major driver issues for this category were

- the delivery of consistent and appropriate public consultation programs by industry and the EUB, accompanied by programs to increase public awareness and understanding of sour gas issues, and
- lack of awareness and understanding among Aboriginal people regarding sour gas-related issues and the role and relationship between the EUB and other relevant provincial and federal departments, including Health Canada and Indian Oil and Gas Canada.

Situation in 2000

The Advisory Committee found that most participants in the outreach process expressed concern about the lack of awareness and opportunity for education regarding sour gas issues. Concerns included difficulty in accessing information, the general lack of public awareness, the uneven playing field regarding public consultation, misinformation, the lack of informed public participation in decision-making, and getting consistent, credible information.

The committee also believed changes were needed to improve the availability of unbiased information respecting sour gas and public health and safety. This may require additional communications training for those providing information to the public.

The Advisory Committee's outreach processes also revealed that the role of the EUB was unclear to some of the public and that some questioned its credibility as a neutral regulator. The committee was of the view that the EUB needed to be more proactive about its role, particularly respecting sour gas and public health and safety. This might involve upgrading printed material to make it more readily understandable and improving the availability of such material, including by electronic means. It might also involve the need for more specialized training for certain staff or other organizational changes.

It was clear from the committee's work that the EUB was not well known by First Nations or Métis people.

Objectives

To address the recommendations in the Information, Communication, and Consultation category, PSIT focused on the following objectives to be carried out by the EUB:

- Increase public awareness and understanding of sour gas issues and make available to the public information about public safety and the role of the EUB.
- Increase public involvement in meaningful consultation about energy development in Alberta.
- Clarify jurisdictions, roles, responsibilities, and relationships, and communicate those to appropriate stakeholders (Aboriginal communities, industry, local government).
- Ensure public consultation processes are in place within Aboriginal communities for energy development proposals.
- Continually develop the EUB's relationship with Aboriginal communities.

Recommendation 14

The EUB, First Nations, Health Canada, and regional health authorities ensure there is effective communication on the health service expectations of the various parties related to sour gas in the vicinity of First Nations communities.

Intent

To address the lack of information among Aboriginal communities on the question of "who is responsible for what" as it relates to sour gas and health impacts on Aboriginal people living near sour gas development. Some Aboriginal communities are not aware of information and services that are currently available, and this lack of awareness could lead to some issues not being adequately addressed.

Actions Taken

A project team comprising representatives of the EUB, Health Canada First Nations and Inuit Health Branch, and Alberta Health and Wellness was established to address this recommendation. The team hired a consultant who compiled information on health services available to First Nations near sour gas development. It surveyed health staff in 11 affected Aboriginal communities to determine the degree and identify gaps in the level of awareness of these services. This investigation resulted in a final report.

The survey found that First Nations are knowledgeable about health services and the source of those services provided by the various health agencies. The report identified two gaps in respect to sour gas awareness. First, there was a need for general sour gas information to be shared with local health centre staff, and industry needed to improve communications with First Nations people on development and ERPs. Second, there was a need for Health Canada to clarify roles and responsibilities of its staff on reserves, in the event of a sour gas incident.

The team was aware that these gaps were being addressed by work being done on several other PSSG projects and provided its reports and recommendations to the project leaders of those activities.

Recommendation 16

The EUB review and organize its existing large quantity of sour gas data on well, pipeline, and facility leaks, ruptures, flares, and venting to provide a historical database that is accurate and complete, and, in conjunction with other stakeholders, urgently develop and maintain new databases that deal specifically with sour gas, and make such databases available to the industry and the public.

Intent

Ensure the EUB has a comprehensive sour gas database (SGD) that is accurate, complete, and available to industry and the general public.

Actions Taken

An EUB team that includes business representatives and information technology experts is in place and is directing a phased project focused on improving SGD quality and completeness.

- Release 3 of SGD, scheduled for June 2007, will provide actual maximum H_2S values for all wells within a pool that have gas analysis data available and estimated values for all wells in a pool without gas analysis data. An override function is also being implemented to ensure that any erroneous H_2S values are not propagated to wells requiring estimated values. The completion of this phase will result in maximum H_2S values on all sour wells in the province.
- Subsequent phases will provide maximum flow rates and H_2S release rates for all sour wells and maximum H_2S release rates and related data on facilities and pipelines.
- Data errors and problems within the exiting database are currently being addressed. Processes will be developed to ensure ongoing data integrity.

At the initiation of this recommendation, a project team was established to identify the sour gas data residing on the EUB's database and determine which additional sour gas data needed to be collected and stored within the database. The team was also responsible for considering access to the data.

The project was split into two subprojects: data storage and tool development, and a Web site with public access.

Progress continues to be made on the first subproject aimed at development of an accurate and complete SGD and tools necessary to efficiently access these data. The second subproject was near completion but security concerns about uncontrolled public access to this type of information resulted in the EUB decommissioning the sour gas Web site. Notwithstanding this development, appropriate data retrieval tools are being developed in and outside the project to allow EUB staff to provide controlled access to data on a request basis.

System work is ongoing, and the project will continue to develop better access to the sour gas data. The data and the tools being developed to access the data will be used by the EUB to carry on operational activities relating to public safety and the development of sour gas resources in Alberta, and a data retrieval product will be available to the public upon request. It is strongly emphasized that the process of improving the EUB SGD and its capability to deliver better access to information is a continual process and incorporated into the EUB's business plans.

Recommendation 29

The EUB field staff becomes more involved in landowner-operator discussions of sour gas concerns and in multi-stakeholders groups and assist in answering questions and resolving issues, particularly as they relate to public health and safety.

Intent

Ensure active involvement and visibility with landowners/public and operators regarding sour gas concerns.

Actions Taken

Two provincial synergy conferences were held, one in 2002 and another in 2003. In 2004 a Synergy Group Action Team was struck to develop a synergy umbrella group. The umbrella group, Synergy Alberta, was formed in 2005. It has now made itself into a nonprofit society.

The society will provide a source for networking, information sharing, and learning opportunities for Alberta residents, landowners, and key stakeholders who share their land base with resource development. A board of directors has been established and it has hired an executive director. The board of directors consists of ten members, with one Métis, three community, three oil and gas industry, and three government representatives. The board position for a First Nations representative has yet to be filled.

There are currently 57 active synergy groups throughout the province. Synergy Alberta is funded by the EUB and the Canadian Association of Petroleum Producers (CAPP) and has received donations from the Canadian Association of Petroleum Landmen (CAPL). More information on Synergy Alberta is on its Web site at www.synergyalberta.ca.

Recommendation 37

The EUB encourage mediation efforts and increase EUB staff involvement in an attempt to resolve concerns among stakeholders outside of the formal hearing process.

Intent

Proactive use of Appropriate Dispute Resolution (ADR) tools, such as mediation and facilitation processes, to improve understanding among stakeholders and facilitate resolution by the parties outside more formal processes.

Actions Taken

- Developed an ADR framework and implemented a program for using dispute resolution tools and techniques.
- Issued *IL 2001-01: Appropriate Dispute Resolution (ADR) Program and Guidelines for Energy Industry Disputes* in January 2001.
- Issued two pamphlets in May 2001, *Exploring Your Options: The Preliminary ADR Meeting* and *What about Dispute Resolution*? and a mediation brochure in June 2001, *Resolving Issues Through Mediation.*
- Issued *EUB ADR Program Guidelines for Services Providers and Mediators* in June 2002.
- Issued six consecutive ADR annual reports from 2001 to 2006.
- Issued *EnerFAQs No. 15: All About Dispute Resolution (ADR)*, which consolidates the ADR program in a user friendly format.
- Established a communications plan to increase stakeholder awareness of ADR, including a Web page under EUB Home: Public Zone : EUB Process : ADR.
- Provided numerous presentations to stakeholders throughout Alberta.
- Established an e-mail box for ADR concerns and access.
- Developed a feedback form for stakeholders to evaluate the ADR process.
- Established an ADR training program for EUB staff, Appropriate Dispute Resolution (ADR) Training Level 1 and Level 2, including practice sessions.
- Established a Facilitation Team, made up of dedicated full-time staff trained in the ADR process.

There is also a wide application of the EUB's ADR processes in other projects, such as Land Challenge, where ADR facilitators are used.

Recommendations 45, 46, and 47

45 – The EUB place greater emphasis on the need for its involved staff to be neutral when dealing with the public and industry respecting inspection results, complaints, and the resolution of concerns.

46 – The EUB place greater emphasis on its role as a regulator to protect the public and provide a higher profile for its involvement in matters related to public health and safety.

47 – The public be made aware of the clear distinction between Alberta Resource Development's role of promoting the development of Alberta's resources and the role of the EUB as a regulator that ensures that if developments are approved they take place in a manner that is in the public interest.

Intent

The EUB must first understand stakeholder perception of the EUB's neutrality in carrying out its mandate. It then must take steps to make improvements where gaps exist in the public's understanding and perception of the EUB's neutrality.

Actions Taken

EUB developed a three-year strategic communications plan, which includes

- the Emergency Planning and Assessment (EPA) Section in the Public Safety Group, which primarily focuses on emergency response plan reviews, approvals, and assessment and setback requirements;
- staff neutrality training programs—the EUB Law Branch prepared "neutrality principles," which have been approved by the Board; all new EUB staff will be given training on "neutrality principles and natural justice";
- visits to MLAs and local governments to reinforce the EUB's role as a neutral, impartial regulator;
- relationship with Alberta Weekly Newspaper Association developed; and
- staff training in dealing with the media.

In May 2006, the EUB created the Public Safety/Field Surveillance Branch to ensure an ongoing public safety focal point within the organization. The EUB's Field Surveillance functions remain in place and unchanged with the addition of the Public Safety Group, which consists of two sections and an advisory team:

- Emergency Planning and Assessment Section—primarily focused on emergency response plan reviews, approvals, and assessment and setback requirements.
- Community and Aboriginal Relations (CAR) Section—primarily focused on informing stakeholders and customers about key public safety services, rules, regulations, and processes of the EUB in order to build trust and ongoing relationships. By early 2007, CAR team members will be located in the St. Albert, Midnapore, Drayton Valley, Red Deer, and Grande Prairie Field Centres.
- Public Safety Advisory Team—primarily focused on developing, implementing, managing, and coordinating a systemic continuous improvement approach to the EUB's public safety mandate.

A key responsibility of the Public Safety Group is to provide clear, timely information about the EUB and its public safety responsibilities, with the goal of increasing public confidence in the EUB's regulatory system.

In addition to ensuring that the 87 recommendations in the December 2000 report from the Advisory Committee on Public Safety and Sour Gas are fully addressed and a final report is prepared, the group's overall role is to

- affirm the EUB's commitment to enhancing and continuously improving public safety during the exploration, development, and production of sour gas in Alberta;
- enhance community and Aboriginal relations throughout the province by improving working relationships, addressing issues, and ensuring better communications with the public, synergy groups, Aboriginal communities, local governments, regional health authorities, and other stakeholders;
- ensure industry compliance with *Directive 071: Emergency Preparedness and Response Requirements for the Petroleum Industry*; and
- augment the EUB's public safety responsibilities on an ongoing basis by working cooperatively with all EUB branches to analyze the EUB's regulatory system with the goal of continuous improvement.

The mission of the EUB's Public Safety/Field Surveillance Branch states: "We work with stakeholders to protect the public, the environment, and the resource through inspections, community education, and incident response."

Recommendation 48

The manner of funding the EUB be reviewed, including a consideration of the possibility of returning the funding back to an equal sharing by the industry and government to reflect the dual role of regulating the industry and serving the public interest.

Intent

The EUB should review how it is funded by industry and government.

Actions Taken

- The Minister of Energy commissioned a funding review committee to evaluate alternatives to the existing funding model.
- The EUB's 2003/04 budget has an increased percentage of government contribution (40 per cent).
- The EUB continues to request government for 50/50 funding.

Recommendation 51

The EUB, along with industry and government, investigate methods that will result in greater encouragement for all industry management to take sour gas issues and concerns more seriously and to impart this position and attitude to all company and contract personnel involved with sour gas operations.

Intent

To ensure that industry not only uses best technical practices, but also reflects best attitudes and corporate philosophies in its approach to sour gas development, particularly as these relate to public health and safety.

Actions Taken

- A consultant, on behalf of Communications, conducted a survey of current industry sour gas practices to establish baseline data.
- In consultation with industry players of all sizes, the survey results found that industry generally understands and seeks to be compliant with EUB sour gas regulations and requirements. The survey did find some inconsistency in the practice of public consultation, which has been addressed in Recommendations 69, 70, and 74. The survey report was passed on to the EUB's Compliance and Operations Branch for tie-in with Recommendation 49. In addition, as the goal of the PSSG initiative is to review and improve regulatory and industry practices related to sour gas, many other recommendations deal with specifics of this recommendation. Requirements for acceptable public consultation were rolled into *Directive 056*. Applications assessment now examines consultation as part of its assessment function. EUB public hearings can also hear evidence on public consultation and have a bearing on the EUB decision.

Recommendations 69, 70, 71, 72, and 74

69 – The EUB establish a staff resource team that focuses on public consultation to assist industry in providing a more consistent approach to public consultation, including consultation with Aboriginal people.

70 – The team referred to in recommendation 69 work with CAPP, training institutions and other industry associations to develop public consultation training programs that reflect EUB requirements and expectations for public consultation and that incorporate training in the practices set out in the CAPP Guide for Effective Public Involvement.

71 – Stringent action, such as denying the application, be taken by the EUB for failure of a company to conduct effective public consultation programs.

72 – The EUB develop a list of suggested questions to assist the public during the public consultation process.

74 – The EUB initiate, in conjunction with industry and training institutions, the development of effective communications training programs for those individuals responsible for communicating with the public respecting technical aspects of sour gas.

Intent

Improve industry awareness of and compliance with EUB participant involvement expectations and requirements. Ensure consistent participant involvement practice through monitoring and training programs, thereby improving relationships among industry, the public, and the EUB. Work with stakeholders to set participant involvement standards and develop training courses for participant involvement and technical communication.

Actions Taken

This project began by clustering all the recommendations related to public consultation. The staff resource team that was struck had members from EUB Facilities Applications, Compliance and Operations, Field Surveillance, Law, and Communications groups, plus an Aboriginal advisor.

The consultant's materials review and gap analysis gave the team a starting place from which to develop new or revise existing requirements and expectations related to public consultation. Through the *Directive 056* process, public consultation became known as Participant Involvement (PI), in recognition that the involvement process includes industry, communities, individuals, and EUB staff as either passive or active participants in energy development. Representatives from CAPP, CAPL, and members of the general public also actively participated in the development of *Directive 056* requirements and expectations.

The new edition of *Directive 056* published in October 2003 contained a new section on PI, as well as an updated Chairman's letter to landowners, new documents in the required EUB information package for consultation, and audit protocols and consequences for noncompliance. The new *EnerFAQs No 8: Proposed Oil and Gas Development: A Landowner's Guide* was also included. This EnerFAQs contains a list of questions to assist the public during the PI process.

In October 2004 a master's degree thesis on PI performance measurement, sponsored by the EUB, was completed in cooperation with Facilities Audit, Facilities Applications, Appropriate Dispute Resolution (ADR), Field Surveillance, PSIT, and Communications.

At one point in the process, plans were discussed to develop a list of facilitators for PI, similar to the ADR mediator list. However, at about the same time, CAPP released an update of its *Guide for Effective Public Involvement* and plans to develop an industry training course. EUB Communications was invited

to join the steering committee for the PI training. The committee also included members from Small Explorers and Producers of Canada (SEPAC), Canadian Association of Petroleum Landmen (CAPL), and Canadian Energy Pipeline Association (CEPA). The Petroleum Industry Training Service was selected as the service provider. In March 2005, the course was piloted, with the first class scheduled for April 2005.

The rules related to PI have been reviewed and revised, documents updated, a performance measure developed, and a training course developed in partnership with industry and training institutions. Since the PSSG initiative began, we have seen among all stakeholders a significant increase in awareness of sour gas and the measures in place to protect public safety.

Recommendation 73

Formation of an information office located within the EUB and supported by a stakeholder committee, to provide accurate, reputable, neutral information related to sour gas development and to be a key contact for referring the public to sources of additional relevant, reputable information.

Intent

Improve public and energy industry access to unbiased information and key contacts. Disseminate information in a variety of formats, including liaising with stakeholder groups throughout the province.

Actions Taken

- The EUB Web site (www.eub.ca) was expanded with the addition of a new "Public Zone" area designed to provide accurate, reliable, and neutral information to all Albertans. The EUB Web site was also redesigned to accommodate the new content areas and to ensure a single integrated EUB Web site that is dynamic, user friendly, easy to understand, and yet linked to relevant detailed technical information. The Web site contains information on topics including What Is Sour Gas?, The Business of Sour Gas, Audits and Inspections, Actions on Public Safety, and Emergency Response and Public Involvement.
- The Customer Call Centre is now in place at the EUB. Dedicated staff directly answer inquiries from all customers, including the public, industry and government. The Call Centre strives to answer the inquiry on the first call, where appropriate, but will work with other EUB groups where dedicated subject experts respond to the inquiry.

Recommendation 75, 76, and 80

75 -The EUB conduct information sessions, workshops, and panel discussions involving the public, industry, and other stakeholders specifically focusing on raising awareness and understanding of sour gas developments, rights of surface and subsurface owners, and how the EUB determines the public interest in making decisions on applications.

76 - The EUB prepare material providing clear, understandable information on technical matters such as ERPs, EPZs, setbacks, rights of surface and subsurface owners, risk communication, and hazard and risk assessment.

80 - The EUB put greater emphasis on developing relationships with all of its stakeholders.

Intent

Increase public awareness and understanding of sour gas issues and provide credible information to all Albertans.

Actions Taken

The wording of Recommendation 75 specifically referred to information events, such as information sessions, workshops, and panel discussions. However, the intent was to increase public awareness and understanding, it is very similar to the stated intents of recommendations 76, 80, and 81. Thus, the scope was broadened to include informational and training materials as well as events, for a wide array of audiences.

The three recommendations together cover the widest possible scope. The rationale for using a variety of information formats (written, video, CD-Rom, Web sites, workshops, formal information sessions) is that the EUB serves the energy information needs of Albertans from birth to death in rural and urban areas and at literacy levels from grade three to Ph.D. One format would not have been sufficient.

A variety of events and dissemination vehicles were developed and implemented to satisfy the intent and to convey both technical and nontechnical information to a diverse array of audiences. The EUB information session held in March 2004 provided information to EUB, government, industry, and community stakeholders about such PSSG milestones as dispersion modelling, emergency response requirements, planning and proliferation, participant involvement, and Web innovations. The Aboriginal Youth Project was a joint initiative with the Pikani (Peigan) band of Brockett, Alberta. A learning kit and facilitator's guide was developed to teach children about the EUB and oil and gas development through an interactive process based on the Aboriginal oral tradition of sharing/decision-making circles. Along with the guide, the kit includes a room-sized floor mat, two teaching videos, and all the materials needed for the lessons.

Sponsorship of Alberta Innovation and Science's Science and Technology Week initiative provided an opportunity for the EUB to profile two children's science activity booklets, *Petroleum Play* and *Power Play*. Later, the EUB created a portal on the EUB Web site called Kid Zone, from which both these booklets can be downloaded. In addition, *Eye on Energy* is a science crate of activities about the role of the EUB field inspector that was developed in partnership with the Science Alberta Foundation. The crate has been widely used as a teaching kit in Alberta elementary and junior high schools. Approximately 10 000 Alberta students and teachers have taken advantage of this learning tool. The promotional kit was sent to MLAs and other government contacts and continues to enjoy wide circulation in schools and at community events throughout the province.

To support recommendation 75, 80, and 81 initiatives under recommendation 76, the EUB Communications Group purchased a Power Point projector, a VCR, a portable printer and laptop,

promotional items for the Kid Zone, and stock photography and printed and disseminated the *Petroleum Play* and *Power Play* booklets. The hardware is used by EUB staff attending public and industry meetings outside of Calgary to share information on energy requirements and regulations.

The EUB is currently preparing materials to provide clear, understandable information on technical matters such ERPs, EPZs, setbacks, risk communications, and hazard and risk assessment. Many of these materials are awaiting implementation of the work on the EUBH2S software program and the setback review planned under Recommendation 52.

The EUB currently has an extensive list of EnerFAQs documents on many topics related to oil and gas development:

- *EnerFAQs 1: What Is the Alberta Energy and Utilities Board?*
- *EnerFAQs 2: Having Your Say at an EUB Hearing*—explains the purposes of EUB public hearings and provides information to assist you in participating effectively
- *EnerFAQs 3: Inspections and Enforcement of Energy Developments in Alberta*—safe and efficient development of Alberta's energy resources are the rules and standards by which energy facilities must operate
- *EnerFAQs 4: All About Critical Sour Wells*—explains what a critical sour well is, the special safeguards such a well requires, and how these safeguards protect Albertans from sour gas blowouts
- *EnerFAQs 5: Explaining EUB Setbacks*—explains setbacks in the energy industry, how they are determined, and how they may affect Alberta citizens and their communities
- *EnerFAQs 6: Flaring and Incineration*—the EUB ensures that flaring and incineration are carried out in a manner protective of public safety and the environment
- *EnerFAQs 8: Proposed Oil and Gas Development: A Landowner's Guide*—when oil and gas companies propose development on or near your property, you want to be aware of your rights and options as a landowner
- *EnerFAQs 9: Animal Health*—addresses questions and concerns of farmers and ranchers whose operations are located near oil
- *EnerFAQs 10: Coalbed Methane*—explains the EUB's role in ensuring that CBM development is conducted in an orderly, efficient, and responsible manner
- *EnerFAQs 13: The EUB and You: Agreements, Commitments, and Conditions*
- *EnerFAQs 14: Public Health and Safety: Roles and Responsibilities of Agencies That Regulate Upstream Oil and Gas*
- *EnerFAQs 15: All About Appropriate Dispute Resolution*

The EUB believes that the wide range of actions implemented under numerous recommendations will place a stronger emphasis on improving and developing more and enhanced relationships with all stakeholders affected by sour gas development.

Recommendation 77

The EUB field centres identify key operator contacts, telephone numbers, and locations of facilities and provide this information to the public in order to enable them to more efficiently contact appropriate industry officials regarding a development in their area, if they require information or have concerns.

Intent

Field Surveillance regularly identifies key operator contacts, phone numbers, and facility locations to enable the public to more efficiently contact industry regarding information and concerns.

Actions Taken

Field staff can also access information for the public via the Field Inspection System (FIS) database and provide this information to the public verbally. The aim of FIS, which electronically records and monitors upstream oil and gas activities and installations, is to build an automated and integrated approach to Field Surveillance inspection activities and data management. This has been done in phases.

Notifications

The first phase of the FIS project, implemented in 2002, allows industry to submit electronic notification information, such as well spud and pipeline construction and testing data, via the EUB Digital Data Submission (DDS) system on the EUB Web site. EUB staff run FIS directly from their desktops with add/edit access to externally submitted Web data, as well as perform special functions, such as adding a facility.

Incidents

The second phase of the FIS project, implemented early in 2003, captures incident data about liquid and gas releases and public complaints for upstream oil and gas activities. It also captures pertinent information for the facilitation process and the investigation efforts of field staff.

Inspections

The last phase of the FIS project, implemented at the start of 2004, captures field inspection data and tracks operator/licensee compliance histories, enforcement information, and gas activities. It also captures important information for the facilitation process and the investigation efforts of field staff.

Inspectors leave summary reports at the inspection site and load the inspection results onto FIS, and licensees use the EUB Web site to generate detailed reports. The information is available about 24 hours after the inspection is completed.

Implementation of the final phase of FIS means that

- all Field Surveillance inspection work is done using FIS,
- inspection enforcement is administered in FIS,
- inspection information is captured in real time using hand-held PC tablets, GPS, and digital cameras,
- inspection staff uses a geographical information system (GIS) interface to view licence, past incident, past inspection, and inspection prioritization information, and

licensees can view inspections on any licences owned by them, as well as enforcement information, on the EUB Web site through the Digital Data Submission system.

Recommendation 79

The EUB initiate a study involving industry, government, the public and municipal representatives to determine the nature of local benefits, such as reduced property taxes and local business opportunities, to communities impacted by sour gas development.

Intent

Develop a better understanding of the economic effects of sour gas development at the community level, information essential for effective consultation and interaction between industry and the public.

Actions Taken

The study conducted under recommendation 79 culminated in the report *Nature of Local Benefits to Communities Impacted by Sour Gas Development, September 2003.* The report was prepared by a 12-member multistakeholder steering committee. Consistent with the recommendation, the steering committee struck a balance of public, local government, industry and specialist members, with EUB staff coordinating data collection and performing the economic analysis for the committee's work. The final report was accepted by the EUB, which thanked the committee "for providing an admirable document containing significant amounts of valuable information."

The study examined the nature of local net financial benefits to communities impacted by sour gas development. A case study approach was used that examined benefits for four municipalities located in sour gas producing regions of the province. The economic analysis provided a snapshot of local and provincial benefits for a one-year period, based on sour gas activity and economic data for the year 2000.

In general, the study showed that sour gas activities generate benefits for the province and also for the municipalities where they operate. Regardless of where one lives in the province, all Albertans enjoy some share of the provincial benefit. Albertans living in an area where the sour gas industry operates may also receive a share of the local benefits generated, perhaps directly through employment or business income or indirectly through the net financial benefit accruing to the municipal government. Nevertheless, some people argued that those who live near sour gas operations experience costs and are negatively impacted in ways others are not, and they suggested that these impacts are not adequately offset by their share of the benefits.

The report is available on the EUB Web site at www.eub.ca/docs/public/sourgas/I-79FinalReport-2003-09.pdf.

Recommendation 81

The EUB develop a brochure for the public that focuses on the role of the EUB and provides contact names and phone numbers to be given out when industry does public consultation.

Intent

Develop and make readily available a brochure providing comprehensive information on the role of the EUB.

Actions Taken

The EUB Communications Group, in consultation with PSIT, decided to broaden the scope of the recommendation to relay the role of the EUB to as many audiences and in as many formats as possible. Thus it was determined that restricting information to text-based formats was not in the public interest.

It was also determined that the EUB needed to include school-aged children, Aboriginal and non-Aboriginal, as well as adult members of the public. Given the Alberta Learning statistic above, the team turned to video and CD formats, interactive science kits, Web sites, and activity booklets. The reasons for a particular emphasis on children's materials were that the EUB had committed to participation in the cross-ministry initiative on youth and energy development, the Energy Minister's Energy Education Forum, and the fact that energy education is not currently part of the Alberta curriculum. Rather, teachers rely on supplementary materials from credible organizations. Therefore the children's booklets *Petroleum Play* and *Power Play* were developed. The demand for the booklets has been so high that they have been reprinted twice, and annual reprints are expected. Oil and gas companies, service companies, and EUB Field Centres frequently request booklets; demand is not limited to teachers.

The brochure mentioned in the original recommendation emerged as *EnerFAQs 1: What Is the Alberta Energy and Utilities Board?*, which was the beginning of a series of Q&As of greatest interest to the public. There are now 15 in the series.

An EUB history video was also developed as an opportunity to celebrate Alberta's centennial by capturing the colourful and important contribution of staff of the EUB and its predecessors, the Public Utilities Board and the Energy Resources Conservation Board, to Alberta's history and prosperity.

Recommendation 83

The EUB consider forming an Aboriginal advisory committee or a series of regional advisory committees to better ensure that Aboriginal issues are recognized.

Intent

Improve relations with Aboriginal peoples on all sour gas regulatory matters.

Actions Taken

- The EUB established an Aboriginal Advisory Committee, involving senior leaders from the Aboriginal community and the EUB.
- The committee will provide the EUB Board with advice and guidance on current Aboriginal issues and activities relating to energy and utilities development.

Recommendation 86

The EUB strictly apply its existing requirements that industry conduct timely and meaningful public consultation in and around First Nations lands and Métis settlements.

Intent

The EUB strictly apply its existing requirements that industry conduct timely and meaningful public consultation in and around First Nations lands and Métis settlements.

Actions Taken

- A thorough analysis was made of existing requirements and expectations for public consultation in general and with Aboriginal individuals and communities.
- Analysis revealed some gaps, which were rectified in revisions to *Directive 056* in 2003.
- Several new references regarding consultation with Aboriginal communities were made to clarify expectations.
- All EUB requirements and expectations for participant involvement have and continue to apply to both Aboriginal and non-Aboriginal individuals and communities. The requirements do not differentiate in this regard.

Sustainability and Performance Measures

Sustainability and Performance Measures

Many of the actions detailed in this report have resulted in new or revised requirements incorporated into the EUB's regulatory framework through its many directives and regulations. This means that those particular actions will be sustained and continuously improved by the responsible EUB groups.

Many other actions have been embodied into the individual EUB branch operational business plans and regulatory processes. This also ensures that these types of actions will be sustained.

To ensure that the many actions resulting from the PSSG initiative are continually sustained and that the effectiveness of their implementation is measured, the EUB took the additional step of creating the Public Safety/Field Surveillance Branch to coordinate the EUB's public safety role. The previously existing Field Surveillance traditional roles continue, along with developing additional links regarding public safety. The addition of the Public Safety Group is the focal point within the EUB on public safety matters.

The Public Safety Group has two sections, the Emergency Planning and Assessment Section and the Community and Aboriginal Relations Section. The Public Safety Group, in cooperation with the other EUB branches,

- ensures that PSSG initiative actions are sustained and measured where appropriate;
- reviews and approves ERPs and conducts postapproval assessments of ERPs;
- reviews and analyzes EUB public safety responsibilities so it can advise and assist in continually improving public safety measures within the EUB;
- uses its Community and Aboriginal component to inform stakeholders and customers about key public safety services and processes that the EUB provides; and

To accomplish the specific task of measuring the effectiveness of the actions and processes implemented through the PSSG initiative, the Public Safety Group has developed a performance measurement strategic objective. The objective is "a measured increase in the public's overall confidence level that sour gas is being developed in an effective and safe manner."

In order to achieve this objective, the following outcomes must be delivered:

- increased knowledge of health effects caused by sour gas,
- improved coordination and planning of subsurface and surface development,
- a clear, concise approval and regulatory system,
- a capable emergency response program,
- effective industry PI practices, and
- informed stakeholders.

To realize these outcomes, the Public Safety Group, in cooperation with other EUB branches, will work to deliver focused strategies, programs, and processes, such as

- a strategy to increase knowledge of health effects caused by sour gas,
- processes to improve coordination of subsurface and surface development,
- a regulatory review process,
- programs to assess emergency preparedness and response capabilities,
- programs to evaluate industry public involvement performance, and

- programs to monitor and evaluate how well the EUB is keeping stakeholders informed.

As well as these overall objectives, the Public Safety Group will work closely with other EUB branches to ensure that, where appropriate, specific performance measurement information is publicly reported for the PSSG actions.

Each year the EUB publishes a *Provincial Surveillance and Compliance Summary Report,* which reports the inspection activity, enforcement actions, public complaints statistics, stakeholder involvement efforts, and major initiatives undertaken by Field Surveillance. This summary is now expanded to include the appropriate performance measurement reporting on many of the PSSG actions, as well as overall compliance results regarding all EUB requirements.